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OCTOBER 1972

DRIVER

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WINTER DRIVING

- BALANCED WHEELS ARE A BARGAIN
- MISS DRIVER
- HITCHHIKING
- BE YOUR OWN MOVER?
- BICYCLE SURVIVAL
- INTELLIGENT MOTORCYCLING

DRIVER

WINTER IS HERE

...so don't fight it

The prospect of a bleak winter brings a note of dread to the heart of many an otherwise merry, self-confident driver. Perhaps he thinks of impossible visibility conditions, his shiny, new vehicle caked with dirty salty slush, sluggish early-morning starts. Or, maybe he pictures having to drive mile after mile treading the thin line between traction or skidding. Well, it doesn't HAVE to be that bad. As a matter of fact, with a little advanced mechanical preparation and mental readjustment (harder than mechanical) on the part of the driver, winter driving can be fun—well . . . almost fun.

It's wise to start getting your vehicle ready for the "ordeal" by checking over the basics, including engine tune, the cooling system, lights, brakes, exhaust system, tires, and so on. On page 5 this issue, Miss DRIVER has information on the nitty gritty of chain installation. Before you take a look at that information, however, we'll cover some important points on the controversial subject of winter tires.

TIRES—WHICH TYPES ARE BEST?

Tires are always critical to highway survival, but especially so in winter. Don't fall prey to the persistent winter myth that reducing air pressure increases traction on slick surfaces. If anything, it reduces traction and increases tire wear. In winter, more than any other time, have a tire gage handy and keep tires inflated to the proper pressure.

Check your tires now with a mind to what type of winter conditions you will be facing. If you are low on tread, this is the time to remedy the situation with a new set of skins. Snow tires are a good replacement if you drive mostly on snowy roads. However, while snow treads are effective for starting and stopping in slush and loose snow, they are less effective than conventional tires on glare ice.

Studded snow tires offer the same advantages as regular snow tires, in addition to being especially effective on soft or wet ice (ice at or near freezing). Studded tires, both front and rear, are quite popular with many people who drive habitually on snowy and icy roads in moderately cold temperatures. Studs are now legal during winter in all states except Minnesota, Utah, Hawaii, Mississippi, and Louisiana. Neither studded tires nor regular snow tires should be used for extensive high-speed travel on dry roads. These tires heat rapidly at high speeds, and are subject to tread distortion and possible failure.

Chains offer the greatest increase in traction over the widest variety of winter road conditions and reduce stopping distances as much as 50 percent. Chains also provide the best traction in deep snow and on glare ice, but should NEVER be used on dry pavement.

Since the average winter driver spends 75 percent of his driving time on pavement, and most of that at relatively high speeds, the safest and most practical winter driving precaution for most people is replacing worn tires with conventional treads and using lug-reinforced tire chains when needed. Even snow tire users would be wise to keep a set of chains handy for especially bad road conditions.

UNDER THE HOOD

To make sure your car starts that first cold morning, you would do well to check a few things under the hood.

The right place to install chains: at a rest or service area well away from the road; the wrong place: on the road with you and your car hanging out.

The cooling system should be free from leaks and contain the proper antifreeze mixture. Many engine blocks are cracked each winter because people let the first freeze sneak up on them. Be sure the antifreeze is of sufficient strength, and check it often throughout the winter. Most service stations can do this for you, or you can check it yourself with a gadget similar to the one shown in our photo. Also, if the solution is more than a year old, or appears especially rusty, the radiator may need to be flushed and new antifreeze added.

Don't overlook the battery; it is more affected by cold temperatures than other vehicle components. If the battery is more than a year old, it should have a cell test. Keep it at full charge during cold weather by maintaining proper water level, and avoid over-use of accessories. Now is a good time to thoroughly clean the battery case, terminals, and cables, and tighten and cover con-

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THE EDITOR SPEAKS

DOUBLE CLUTCH

THE INNOCENT PASSENGER?

The passenger at fault?!? What gives? What's wrong with being a passenger? Well, it all depends on who the passenger chooses for a driver. Last year 72 AFers became fatalities while riding as automobile passengers. That's an awful lot of lives to be lost while just sitting in four-wheeled vehicles.

It would seem the victims' fates were completely beyond their control, since they played passive roles in the action. But they did have control over one circumstance, and that's where a lot of them goofed; they chose the wrong drivers.

Perhaps you think that these people died in accidents that were not the faults of their drivers. Not so . . . only a few of these cars were struck by another car.

So, what's the pitch? How can one recognize an unreliable driver before riding with him a couple of times? It's relatively simple—if your driver is sleepy or exhausted, overly nervous or ill, hard of hearing or not wearing his prescribed lenses; if the car is in bad repair (missing rear-view mirror, broken lights, windshield, or windows, bald tires, etc); or if the driver has been drinking, he (or she) is not reliable.

Look at it this way. People who offer to use their wheels and gas to drive their buddies around town can hardly be tagged as "bad guys." Their intentions are good, but sometimes their ability to control their vehicles is questionable, especially when they are physically or emotionally unfit; or when their cars are not fit to drive; when they are under sedation, have taken narcotic medication (prescribed or not), or have had too much to drink.

Here's one all too common situation; you and your buddy worked the same shift, then hung around town until a late hour and consumed just about the same amount of alcohol. You climb back into his car and feel like going to sleep on the ride back to base. Yet, while you are resting, you expect your buddy to be completely alert and capable of driving you safely back to base. It really isn't very sensible, is it?

This condition is very similar to falling asleep in class. It happens all the time. A student can be sitting

continued on page 17

nections with grease or heavy oil to prevent corrosion. (See "A Little Care Will Do It," Mar '72 DRIVER.)

The key to quick starts and good cold-weather performance is a properly tuned and acclimatized engine. Don't forget to have the choke checked, even if you are not in need of a complete tuneup. You'll also want to help your engine and battery by changing to a lighter weight oil, unless you already use a winter variety multi-grade (10W30 or 10W40). Winter stop-and-go driving with a cold engine breaks oil down fast, so it is a good idea to change oil and filter about twice as often as with normal driving.

Also, be sure to allow the oil to do its job in winter. When a car sits for a period of time in cold temperatures, the oil drains into the crankcase and thickens. The oil cannot lubricate properly until it warms and has time to circulate. So never race a cold engine, and always let the engine warm as much as possible before departing. You might also try walking some of those short trips to reduce engine and battery wear.

Finally, on the subject of oil, do you use an oil additive which increases viscosity? If so, don't overdo it in winter; the increased viscosity can make a cold engine very stiff and difficult to start.

SEE AND BE SEEN

Once on the road, seeing and being seen is one of the most important aspects of winter driving. Replace windshield wipers at the first sign of streaking, and keep the windshield washer reservoir filled with the proper antifreeze washer solution. You will also need the proper window clearing devices. Many people use aerosal-spray deicers in addition to the usual scraper and brush. If you use one of these compounds, be careful not to let any of the fluid get into the heater ducts, as the fumes of some brands are slightly noxious. A chemically treated anti-fog cloth is also a good item for clearing the windows on the inside of the car. Be sure the heater and defroster work properly, and check the heater hoses for leaks or signs of wear.

Checking antifreeze regularly during cold weather is a necessity. A service station can do this for you, or pick up an inexpensive tester like the one shown here at an auto or discount store, and keep it handy. Be sure the antifreeze protection level is well below the coldest expected temperatures.

This is also a good time to make sure the exhaust system operates properly and has no leaks. Check all pipes, clamps, and connections, and be doubly sure the exhaust manifold and muffler are in good condition.

You should also drive with two windows open; only one may create a vacuum which can suck carbon monoxide into the car through openings in the body.

To make sure other people can see you, ensure all lights, as well as brake and turn signals, operate properly. Turn your headlights on at dusk and when low-visibility weather conditions dictate. In some locales it is difficult or impossible to see vehicles as they approach intersections where the view is blocked by high snow banks. In such an area another driver spotting a colorful antenna pennant on your vehicle might avoid a collision. Clean lenses increase lighting efficiency, and a clean car is more easily seen during times of reduced visibility. So, a good wax job now and frequent washings during the

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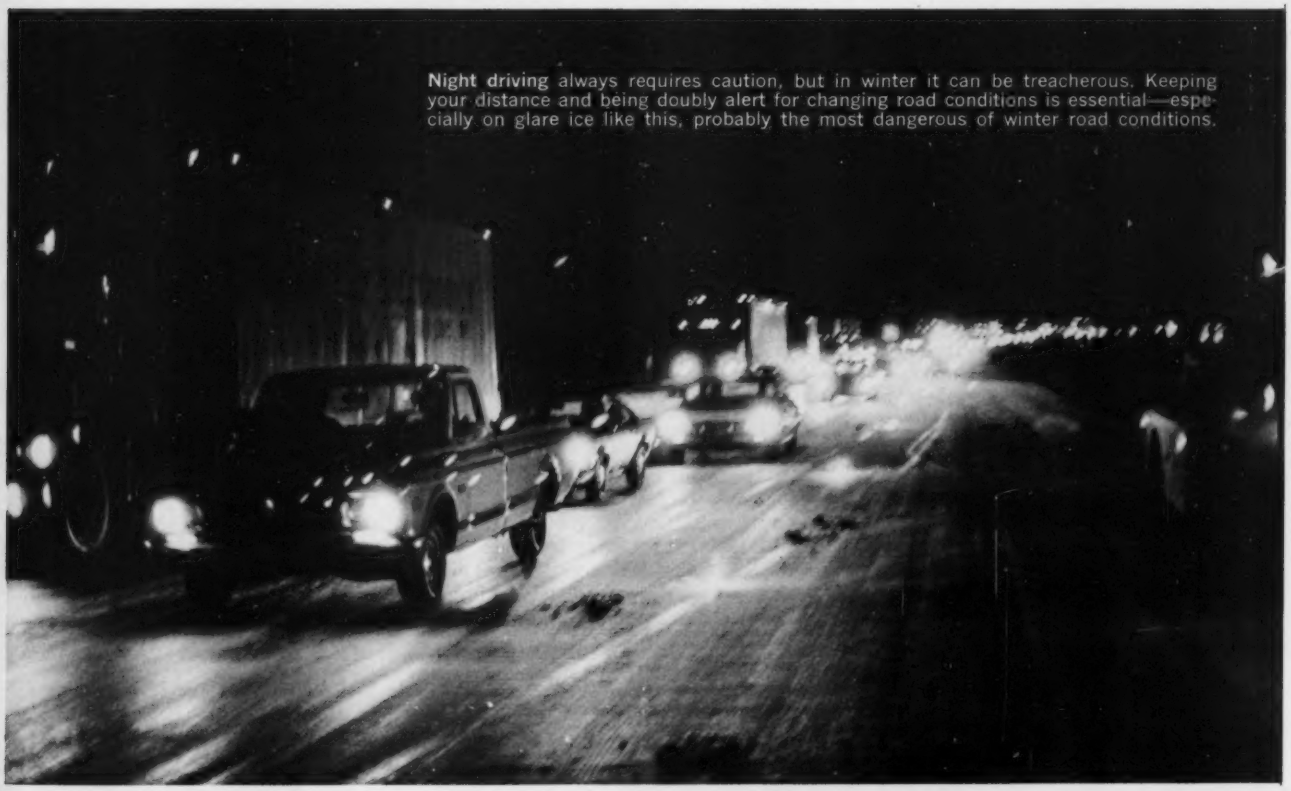


Night driving always requires caution, but in winter it can be treacherous. Keeping your distance and being doubly alert for changing road conditions is essential—especially on glare ice like this, probably the most dangerous of winter road conditions.

Winter driving often consists of snow-packed roads, reduced visibility, congested traffic, increased stopping distances, reduced traction, instant parking lots, and beautiful surroundings. Be cautious of the hazards so you can enjoy the beauty of winter driving.

Waking up to a snow-buried car is a reality of winter driving. Be sure and clear all windows before starting out. And, of course, you wouldn't want to drive anywhere under these conditions without chains and/or snow tires.

One of the fun parts of winter—but not when you are driving. Children playing dangerously close to the road are one of the many winter driving hazards.

winter will pay off. Rinsing away salt and corrosion-producing film from the underside of the body will also help protect the car from rust.

The ability to perform minor roadside repairs can keep you from being stranded. Carry a good supply of basic tools, such as wrenches, pliers, and screw drivers. A blanket, extra winter clothing, warm gloves, and a tarp or old blanket to use as a dry working surface should be carried in the trunk. Also, extra gasoline in an approved can, battery booster cables, a flashlight, water, flares, and a first aid kit could be vital. And, a small shovel, box of sand, and can of tire traction spray could prevent having to call a tow truck.

PREPARING THE DRIVER

Changing your driving patterns is one of the most important steps in winter driving preparation. Road conditions can change as fast as winter weather, and it takes from 3 to 12 times as long to stop on certain winter road surfaces. Make it a habit to keep your distance in traffic under all conditions. Back off the gas early and let the engine do the braking when slowing or stopping. Down-shifting will help if you do it slowly and smoothly; popping the clutch into a lower gear on a slick road can be worse than locking the brakes. Pump the brakes gradually when coming to a full stop. "Gradually" is also the word for starts on snow and ice. If it is really slick, use second gear on a manual but leave the selector in "Drive" on an automatic.

When on the road, be extremely cautious of changing road conditions. Overpasses, underpasses, bridges, and shaded areas are often icy when other road surfaces are dry. If you hit a slick spot on the road, travel through it without accelerating or decelerating. Remember, curves and hills also pose potentially dangerous situations, and tire chains have a slight tendency to skid on curves.

If you do skid, respond quickly, but do not over-respond. Turn in the direction of the skid and be ready to correct the other way if the car swings back too far. Since skids are always dangerous and their direction often unpredictable, the best policy is to avoid them.

The driver's skill and attitude are equally as important to safe winter driving as road, weather, and vehicle conditions. So, if your vehicle is properly prepared, it is now up to you to travel cautiously with an eye out for ever-changing road conditions.

If you treat winter driving as a challenge to be overcome by thorough vehicle preparation and readjusted driving practices—you may find it's fun. •

"Installing chains is a cinch, fellows, and it's simply foolish to not use them when needed. They beat regular and studded snow tires, coming and going, and are a lot easier to remove when no longer needed.

"Even before it becomes necessary to use chains, it's a good idea to have a dry run of the installation procedure at home. But first make certain your chains are of the proper size. If they're not, you'll cause yourself no end of misery trying to get them on in the snow. And check to see if the links are still in good condition. If any are badly worn or cracked, you can buy replacement links at most auto parts stores. Even if they're new, it's smart to carry extra repair links and installation clamps in your trunk

"If you have occasion to install chains while out on the road, find a level spot to park—a safe distance from passing cars. Lay the chains out flat and line them up with the drive wheels, making sure no links are turned. Then loop the installation clamps (which should be attached to one end of each chain) over the tires to hold the chains in place while you back your car onto them. Be sure to stop before the loose ends disappear under the tires. If the loose links end up in front of the tires, you'll have to drive forward a bit or lay out your tarp and crawl part-way under the car to fasten them. An observer can be of great help here.

"If your set doesn't have installation clamps, you'll have to drape the chains over the wheels, force the links at one end firmly under the tire, and drive onto the chains.

"When you have the built-in connectors fastened at the outsides and insides of the tires, hook the rubber tension band around the outside of each chain, spacing the connectors in the chain links evenly to keep the chains tight on the tires.

"Now be on your way, but don't forget to remove the chains when no longer needed—simply by unhooking the connectors and driving off the chains."

(Editor's note) In the photo below, you will see an installation clamp, rubber tension band, and a set of chains, in addition to a very pretty girl.

miss DRIVER

Jo Ann Van Leuven

balanced wheels ARE A BARGAIN

Balanced wheels a bargain, how could this be? Well, DRIVER feels that balanced wheels are not only a financial bargain, but a bargain in safety; here's why . . .

Keeping wheels properly balanced can increase tire mileage (some experts say as much as *50* percent) and decrease the frequency of expensive front-end alignments. And, safety-wise, proper wheel balance can reduce the possibility of vibration or shimmy-induced tire or front-end failure.

The best way to achieve proper wheel balance has always been a subject of controversy and confusion. The confusion stems largely from the fact that wheels may be out-of-balance in one or both of two ways—statically (horizontally at rest) or dynamically (vertically in motion). There are correspondingly two distinct methods of balancing.

STATIC

The static method of balancing (the most common) is accomplished by using a stationary "bubble" balancer and distributing lead weights evenly around the rim (dividing weights on both the inner and outer rim lips) while the mounted tire is resting horizontally. (See photo.) Static balancing is most effective in reducing "tramp," the tendency of a wheel to hop or bounce at high speed. "Tramp" wears flat spots on the tread surface, and causes some vibration.

Static balancing is done on a "bubble" balancer by distributing weight evenly around the rim when it is resting horizontally. Bubble balancing is the most common type, and reduces high-speed wheel hop and some vibration; but it is not always sufficient for a complete wheel balance.

DYNAMIC

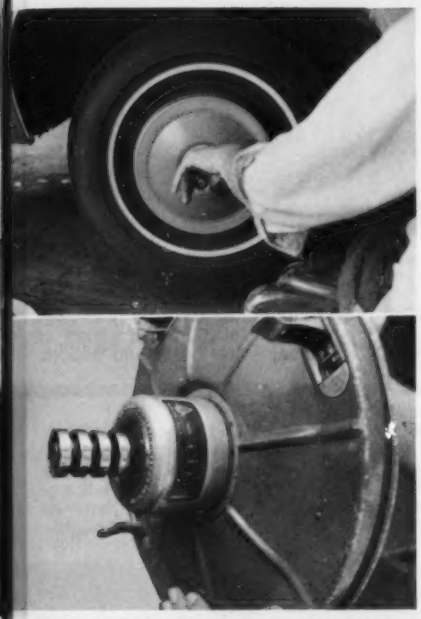
The most common cause of vibrations that may be felt throughout the car, however, is dynamic (lateral) imbalance. A dynamically imbalanced wheel has a tendency to shimmy from side-to-side as it rolls. Lateral shimmying wears tires excessively, but the stresses placed on a vehicle's front-end and steering system are even more damaging and dangerous. The vibrations pass through the suspension, steering systems, and front-end assembly, causing mechanical wear and possible failure as well as throwing the front-end out of alignment.

There are several methods of checking dynamic balance, but it is

usually done by a special device which reads the balance as the wheel spins on the axle. (See photo.)

If you understand the types of balance, try to determine which method or methods of balancing should be performed. Now perhaps you can appreciate the general confusion concerning types of balancing and the differences of opinion expressed by tire-company and shop personnel.

The DRIVER staff was recently caught in this muddle of fact and opinion, and decided to test the theory that a wheel must be balanced both statically and dynamically to be properly balanced.

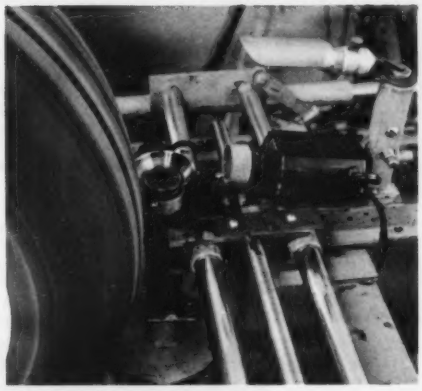


Dynamic balancing is done with a device which detects imbalance in a wheel when it is turning on its axle. Dynamic balancing is usually the most efficient for providing complete wheel balance, since it corrects tire-roll imbalance as well as static imbalance.

Since nearly all hobby shops are equipped with static "bubble" balancers (but few have dynamic equipment), we planned to perform static balance at the hobby shop and then go to a reputable shop to complete the job with dynamic on-the-axle spin balancing.

We went to the local hobby shop and spot-checked wheel camber, front-end alignment, steering apparatus, tire condition, etc, and statically "bubble" balanced four wheels on each of two vehicles. But, we found the static balance was inadequate, and one car even had a worse speed vibration than before.

And, when we took the vehicles to a shop that specializes in dynamic on-the-axle spin balancing, the first thing the specialist did was remove the balancing weights we had so meticulously fastened to the rims. We were told "bubble" balancing often calls for more weight than necessary to balance statically, and adding additional weights to balance dynamically puts too much weight on the rim. These experts also claimed the spin-balancing method will achieve proper static as well as dynamic balance if the weights are placed evenly around the rim. But, most importantly, the spin method balances the entire wheel assembly as it turns on the axle. This is essential, since the tire's roll on the road is affected by many factors.



Tire truing machine trims excess rubber from an out-of-round tire so it conforms more closely to its original shape. Out-of-roundness can be detected only during dynamic balancing and can be corrected only by truing. Truing increases tire mileage as well as reducing vibration causing shimmy.

TRUING

One of the most important of these factors is a tire's actual roundness. A tire can shimmy and cause vibrations if it is out-of-round. An out-of-round tire can be detected *only* during dynamic balancing, and can be corrected *only* by tire truing. Truing is an accepted practice which will increase mileage and reduce vibrations by trimming off excess rubber to make the tire conform more closely to its prescribed dimensions. (See photo.) Out-of-roundness is a rather common ailment of belted and radial-ply tires, but any tire can be out-of-round. If a reputable shop tells you your tires need truing, don't be skeptical, it is well worth the minimal cost and will pay dividends in comfort, safety, and increased tire life.

A "bubble" balancer *cannot* detect out-of-roundness or any other roll factors, since it is used while the wheel is off the axle. The shop experts we talked to admitted that static balancing is better than none at all, but advised that dynamic balancing will produce better results.

After observing one of the experts using the balancer and test driving our cars with dynamically balanced wheels, DRIVER was convinced that on-the-axle balancing is the most efficient. This is not to say well done static balancing is of no value. DRIVER is simply of the opinion that dynamic spin-balancing is most effective for correcting both types of imbalance.

Marking a lug and its corresponding location on the rim of a dynamically balanced wheel is a good idea. This will allow a removed wheel to be remounted in the same position it was balanced and prevent losing the dynamic balance. A grease pencil or other indelible marking device can be used to mark a wheel following on-the-axle balancing.

If you don't have access to spin-balancing equipment, or really can't afford to have it done, don't neglect your wheel balance; it may cost you more than you can afford in repair bills and tire replacements . . . or your life. Eliminate all other possible causes of vibration and try the "bubble" balancer at your hobby shop. If your tires are in-round and all other factors are OK, you may get a sufficient balance by the static method. Also, encourage your buddies at the hobby shop to treat the balancing equipment with respect so others will have a chance for a good static-balance job.

continued

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BALANCED WHEELS ARE A BARGAIN

But, if your car still vibrates or the tires wear unevenly after static balancing, you'd best get to an expert front-end or dynamic-balancing specialist. And, if your shop employs a different method of balancing than discussed here, and it works, let us know.

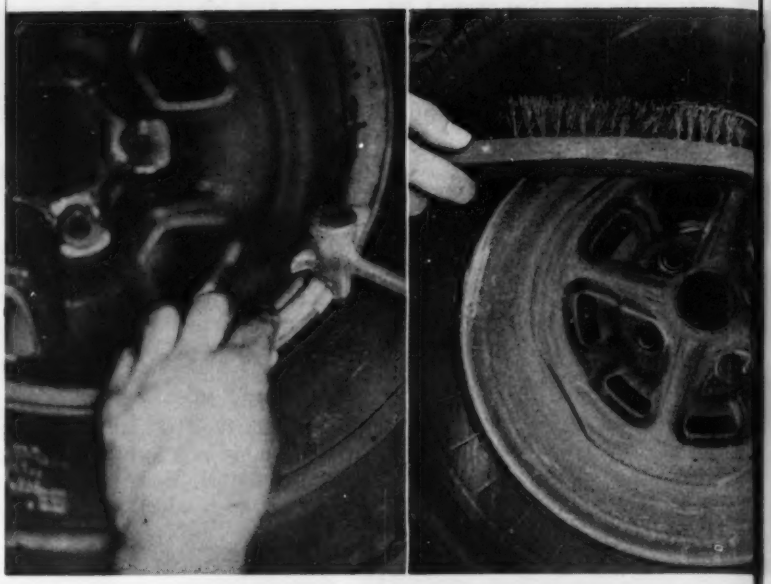
To get you started toward good static balancing the following photos and captions are presented. •

WHEN TO BALANCE/ WHAT ABOUT RADIALS?

Wheel balancing should be performed between 5,000 and 8,000 miles at the same time as tire rotation. Many people question the value of rotation, but it is still recommended by most major tire companies to attain increased tire mileage.

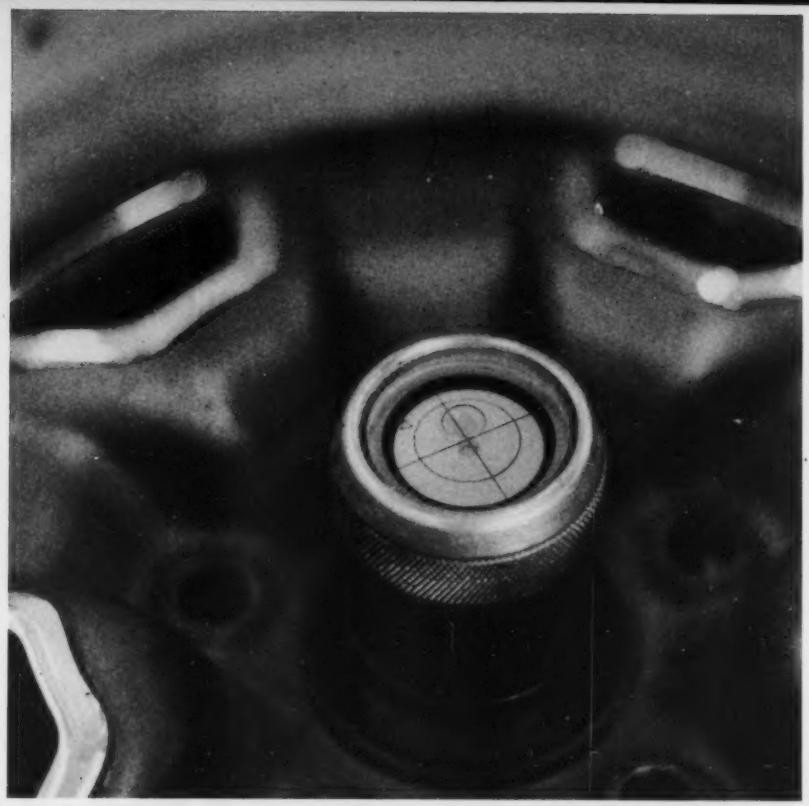
There is a big question concerning rotation of radial-ply and steel-belted tires. There are reports of these tires losing their tread at high speed following rotation from side-to-side. So, be sure to check with your dealer's recommendation before rotating radials or steel belteds.

But even if you don't rotate, remember, regular tire inspection and balancing are still necessary.



1 **Place your car** on safety stands and remove the tires, one at a time, for inspection and balancing. If the tire is in good condition, remove all the old balancing weights with weight pliers and clean the accumulated dirt and rust from the rim. Acquaint yourself with the location and action of the balancer's activating lever, balancing head, and bubble.

3 **The bubble** must be exactly centered to balance the wheel. Place weights two at a time on the rim and move them along the rim until the bubble centers. Weights may be needed in two locations on the rim if the wheel is radically out-of-balance. It takes experimentation and some patience to get the bubble centered. Just keep adjusting the weights until it does center.



2

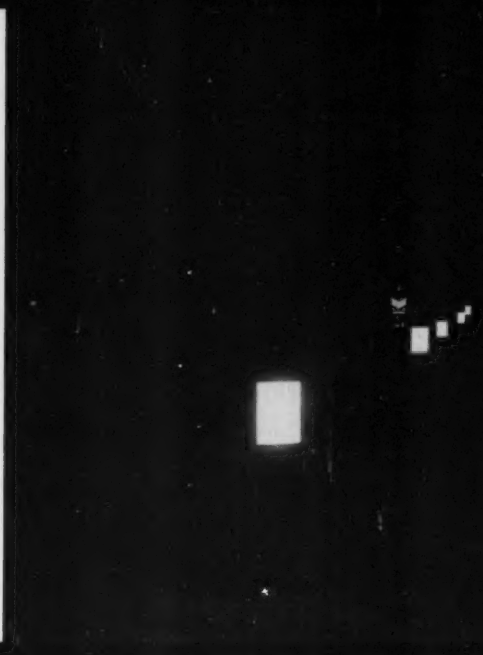
Carefully place the wheel on the balancer, outside rim up, making sure the arrow on the glass case over the bubble points toward the valve stem. Release the balancer by pushing down on the activating lever (if using a balancer on a tire machine, just place the tire on the balancer and wait for the bubble to stabilize). The wheel will wobble and the bubble will become unstable in the case. The bubble will stabilize toward the part of the wheel where weights are needed to balance the wheel. Some balancers have cross hairs and concentric circles on the glass above the bubble to assist in judging the amount of imbalance. If the bubble lies within the first circle, choose ¾-ounce weights; in the second circle, choose 1½-ounce weights. If the balancer doesn't have these circles and lines, experiment until you have the correct weights.

4 **When the bubble** is centered, lock the balancer by moving the lever up. Mark a chalk line across the tread so the location of the weights can be seen from both sides of the rim.

5 **Attach one weight** from each group of two to the inside of the rim, using the weight hammer. Release the balancer and readjust the remaining weights until the bubble centers again; then lock the balancer and affix the remaining weights to the outside of the rim. Distributing the required weights evenly between the inside and outside of the rim is very important for maintaining static balance and giving a degree of dynamic balance.

...on the light side

(left) Retro-reflective vest—light source 50 feet; photographed from 50 feet. (right) Standard Navy Chief's uniform with chalk applied.



(left) Retro-reflective vest—light source 150 feet; photographed from 150 feet. (right) Unmarked Navy Chief's uniform.

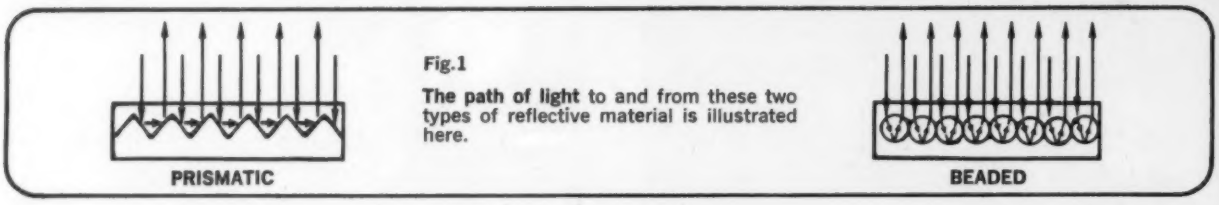


Fig.1

The path of light to and from these two types of reflective material is illustrated here.

Now and then something occurs which makes an old fud like me want to reach out with both hands and say "gimme 10" to a member of the younger generation. Just such an occurrence took place a few nights ago, and I'd like to tell you about it.

It was nearly midnight as I drove my convertible along route I-64 in Norfolk, Virginia. The weather was lousy—definitely not for convertibles. A northeaster had been blowing in off the Atlantic Ocean for the past 7 days, bringing with it high winds, precipitation, and limited visibility. On this particular night a heavy mist hung over the entire Tidewater area.

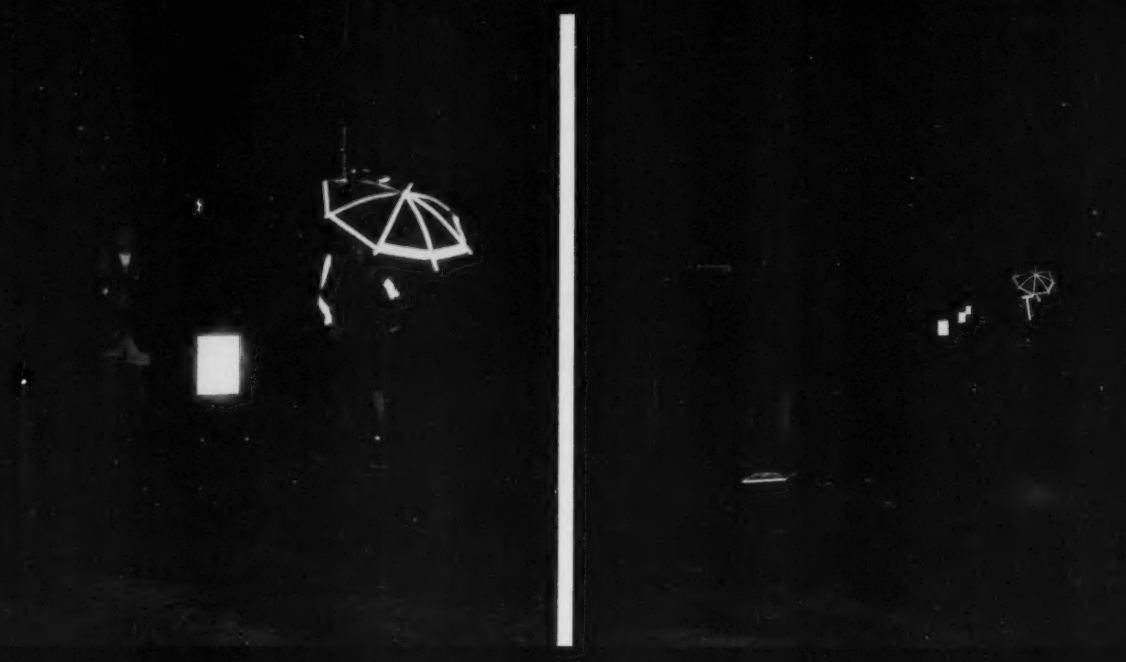
A couple of miles from my off-ramp, I noticed a bright object about 300 yards ahead. At first I couldn't make out what it was, but as the vehicle proceeded over a lighted bridge it dawned on me that it was a motorcycle. Man, whoever rode that bike was lit up like a Broadway theater marquee!

As the two-wheeler exited I-64 at my off-ramp, I hoped it would stop at the first traffic light so I could see what made that rider glow. Luck was with me—the light was red.

I pulled up behind the bike and quickly discovered the source of illumination. The young rider was bedecked in retro-reflective tape. His bike, helmet, jacket, gloves, trousers, and boots had neatly designed strips of tape attached to them. This operator was making sure that 2 tons of automobile didn't overtake him and his bike without the driver seeing them. This guy was right-on, and I was impressed.

Little did that cyclist know that he

by CHARLES W. EISELE, JR
Naval Safety Center



(left) Standard clothing—light source 50 feet; photographed from 50 feet. (right) Retro-reflective material sewn on clothing.

(left) Standard clothing—light source 150 feet; photographed from 150 feet. (right) Retro-reflective material sewn on clothing.

had provided me with an idea for an article. Being a writer of sorts (in the preservation-of-life-and-property field), I considered that a word or two about reflective tape and why it should be used would prove beneficial to all.

After checking the National Safety Council's publication, SAFETY FACTS (1971 edition), I was firmly convinced. Each year thousands of pedestrians, motorcycles, and bicyclists are killed or injured at night because they aren't seen by the motorists who strike them. In 1970 more than 5,000 pedestrians alone were killed during the hours of darkness. This is downright distressing.

Can something be done to reduce this unnecessary killing and maiming of human beings? Based on my own experience, I say it can. That is, if all pedestrians and cyclists will wear retro-reflective tape on their outer apparel. Only someone unfit to drive could possibly have failed to see the cyclist I saw on I-64 that night.

How does retro-reflection work to save lives? It's really quite simple. Any beam of light directed toward retro-reflective material is bounced back to the source with amazing brilliance. These materials are usually beaded or prismatic. The path of light to and from these types is illustrated in Fig. 1.

Now how and where does one purchase retro-reflective material? To answer this question I contacted a Minnesota Mining and Manufacturing Company (3M Co) representative.

The company makes a very suitable retro-reflective material. The rep was most helpful, and gave me the following information:

3M retro-reflective tape in ½- to 36-inch widths is available in 50-yard rolls and in most colors. It has a GSA stock number, GS-07S-02713, which means it can be special-ordered by your friendly exchange officer.

Pedestrian protector kits can be ordered under Federal Stock Nr 8315-144-5882. The kit consists of garment trim, "iron-on" trim, shoe reflectors, and a pedestrian safety tag.

A helmet-marking kit consists of three strips of tape 1 inch by 3 inches.

If your exchange doesn't stock these low-cost items, you can purchase them from a local automotive parts house or from five-and-dime stores.

The photos accompanying this article clearly show the effectiveness of retro-reflective material. Now that you know how and where to purchase it, put in your order today. These materials reflect an image 200 times brighter than ordinary white paint. The small amount you'll pay could be the biggest saving of your life. And for safe daylight cycling, keep your lights burning and your eyes open! ●

NEWS IN TRANSPORTATION

THE HIGH COST OF OWNING A CAR

Have you ever stopped to figure out how much it costs to operate your car each year? If you can't take a shock it might be better if you didn't bother, because costs are extremely high.

According to a recent Federal Highway Administration study, it will cost the owner of a standard-size 1972 auto $13,553 ($112.94 monthly) to operate and maintain his car over the 10 years of its anticipated life; a cost of 13.55 cents a mile. Compacts are cheaper but still cost $10,808 ($90 monthly), or 10.81 cents a mile over the 10-year period. Subcompact owners get by with $9,444 ($78.70 monthly) or 9.4 cents per mile.

The purchase price is only the first step in a long line of costs that must be paid in moving and maintaining the car during its approximately 100,000-mile, 10-year trip from assembly line to wrecking yard. During this period, the standard-size car owner will pay $2,787 for some 7,350 gallons of gasoline. He will pay $2,147 to keep the vehicle maintained and in repair, $1,350 for insurance, and $1,800 for garaging, parking, and tolls. About 9.7 percent of his total cost goes to support the roads he drives on, and amounts to $1,319.

Depreciation is by far the greatest single cost of owning and operating an automobile, and in the great majority of cases the age of the car is more important than its mileage in determining its resale or trade-in value. The annual trader always has a new car, but depreciation for a standard-size automobile over a 10-year period costs him about $12,260 (10 times the first year depreciation). The "2-year trader" pays $10,630 in depreciation (5 times the depreciation for the first 2 years).

Fig. 1 shows where your hard-earned money goes. ●

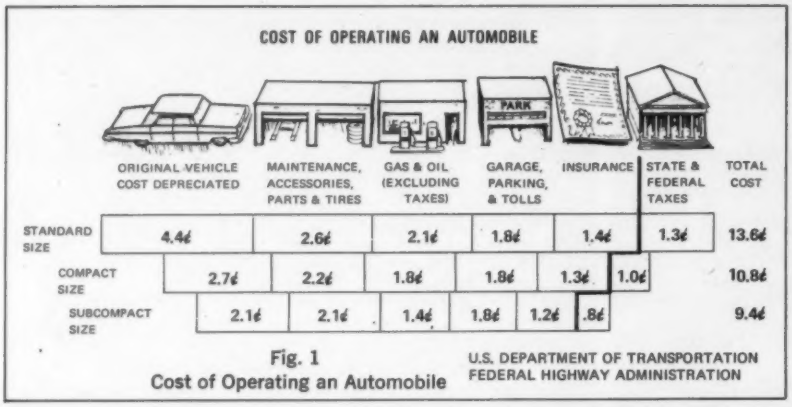


Fig. 1
Cost of Operating an Automobile

VOLKSWAGEN OWNERS BEWARE

If you drive a VW sedan, have reversed wheels, and your bug is still under warranty, you may be in trouble in several ways. According to VW service personnel, reversing VW wheels causes:

(1) possible shearing of the studs on the brake drums because of the improper setting of the wheels to the drums;

(2) disturbance of the front and rear suspension balance system;

(3) larger weight load conditions on the wheel bearings;

(4) removal of the wheels' centerlines from the brakes' centerlines, resulting in higher brake loads;

(5) disruption of the car's weight distribution;

(6) limited stud thread exposure; and

(7) poor traction under snow and ice conditions because chains cannot be used.

In addition to all this, VW does not assume warranty responsibility for any of the damaged parts resulting from the use of reversed rims. So, it seems reversing of the rims may make your bug look good, but it might cost you a lot in the end. ●

VW WIPERS SOMETIMES DON'T

Another warning to VW owners was made public recently. It has been discovered that windshield wipers on certain VW models may fail without warning due to the loosening of a set screw holding the wiper to the wiper shaft. This situation could occur on all sedan, truck, convertible, and station wagon models produced during the years 1947 through 1969. Owners of such vehicles would be wise to check the wiper arm frequently to make sure the set screw which holds it to the wiper shaft is properly tightened. ●

ARMY JEEPS TOO HAZARDOUS FOR PUBLIC USE

The National Highway Traffic Safety Administration (NHTSA) has refused to sanction a Department of the Army plan to sell approximately 17,000 surplus jeeps to the general public. The reason has to do with the problems of handling and stability that make jeeps susceptible to rollover. For these vehicles to be operated safely on the public highway, a public user should have a level of special training equivalent to the military driver, according to NHTSA. This finding by NHTSA supports an awareness the military has had for some time concerning the need for special care in handling jeeps. Those DRIVER readers who drive M151 jeeps should keep in mind they are at the controls of a "special breed of cat" requiring special attention to its unusual built-in limitations. ●

AUSTRALIAN SEAT BELT EXPERIMENT MEETING WITH SUCCESS

In January 1972, legislation was passed in all states of Australia making it a violation of the law, punishable by a fine of $20, not to wear a seat belt while driving. Although it is still too soon for a total evaluation of the merits of the program, it is paying off already in the form of fewer traffic fatalities.

The state of Victoria enacted the seat belt law 9 months before the other Australian states followed suit. During this 9-month period traffic deaths dropped by 24 percent in metropolitan areas of the state, compared with the corresponding 9 months of the previous year. The observed average wearing rate was 75 percent.

Studies in the US have indicated the highway fatality rate would be cut by about 50 percent if motorists would use safety restraints. In other words, approximately 26,000 lives would be saved yearly . . . something to think about. ●

HOW GOES IT?

A MONTHLY RECAP OF SELECTED ACCIDENTS — PRESENTED SOLELY IN THE HOPE SOME WILL BENEFIT FROM THE UNFORTUNATE EXPERIENCES OF OTHERS

Rank: SSgt **Age:** 30 **Type vehicle:** 1969 Buick conv

The SSgt had been counseled for having a defective vehicle on base. He was convicted in civil court for driving at an unreasonable speed 2 months later, convicted for speeding and passing in a "NO PASSING" zone within the following 6 months, and was remanded to the State Driver's Clinic for an unrecorded violation 2 months later. Five months passed, and his unorthodox driving habits earned him another stint at the same clinic.

The day after attending his second correctional clinic, while driving under the influence of alcohol and with his car's speed alert set at 100 mph, the SSgt attempted to brake as the car approached a dead-end T-intersection. The car went into a skid, and one wheel went off into the ditch. The vehicle then crashed into a signboard and became airborne, flipped over in mid-air, and landed upright. The SSgt was killed and his female companion seriously injured.

Investigators were of the opinion the SSgt might have survived and his passenger been less seriously injured, had they been wearing their seat belts.

Probable cause: Loss of control.

Probable contributing causes: Excessive speed and driving under the influence of alcohol. Minimal tread on right front tire may have contributed to the skid.

Rank: TSgt **Age:** 37 **Type vehicle:** Bicycle

It was daytime, with unlimited visibility, when the TSgt was killed by a hit-and-run driver. His bike was struck from the rear, and he was thrown 64 feet from point of impact, while riding on the right side of the road in compliance with state law.

Wing investigators recommended this accident information be made available to all personnel, stating: "The popularity of bicycling is definitely increasing, and future accident experience may dictate the need for specialized programs."*

Probable cause: Hit-and-run driving by unidentified motorist.

* *See "Bicycle Survival," page 22, this issue.*

Rank: Sgt **Age:** Unk **Type vehicle:** 5-ton tractor/trailer

The Sgt was driving a USAF vehicle on a mail run when a man motioned him to slow down after coming out of an S-curve. He slowed to 15-20 mph, moved over the centerline, and sounded his horn several times when he saw a cyclist traveling along the right edge of the road.

As the driver began to pass, the cyclist lost control and his bicycle veered left into the side of the trailer. The victim was thrown forward, clear of the tractor's wheels, and received fatal injuries.

Investigators recommended all personnel be briefed on this accident and the necessity of drivers being more aware of bicycle traffic and pedestrians.

Probable cause: Loss of control of bicycle.

Probable contributing causes: Rider may have turned off onto soft, sandy road shoulder and lost control when startled by incessantly honking horn; panic braking at high speed may have caused loose bicycle chain to drop off rear sprocket.

Rank: Sgt **Age:** 21 **Type vehicle:** Borrowed Motorcycle

The Sgt consumed an unkown amount of alcohol at a party and borrowed a friend's motorcycle. He lost control in a left turn, and the cycle impacted a guardrail. The rider was thrown into a barbed-wire fence, which ripped off his helmet. He was pronounced dead at the scene.

The Sgt's associates stated he was not proficient in motorcycle riding, and had never before operated that particular machine.

Probable cause: Loss of control.

Probable contributing causes: Lack of riding training; operating unfamiliar vehicle while under the influence of alcohol.

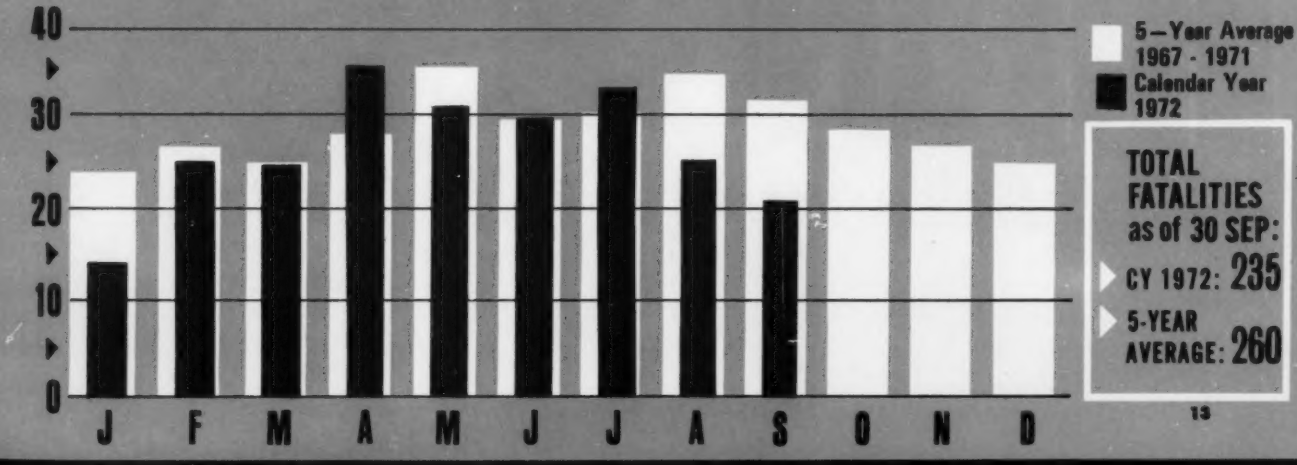
Rank: Sgt/Sgt **Ages:** Unk **Type vehicle:** 1965 Buick Rivieria

The Sgt lost control in a curve at 0145. The car skidded into the median and overturned several times.

The driver, who was not belted in, was ejected from the vehicle and received fatal skull injuries. Another Sgt who had been asleep in the right front seat, but whose seat belt was fastened, suffered only first-aid-type injuries.

Probable cause: Loss of control.

Probable contributing causes: Fatigue and lack of sleep. Had the driver been buckled in, he might have regained control of his vehicle.



HITCHHIKING

something to think about before you get taken for a ride

"Well, why not hitchhike or pick up thumbers? It's cost-free, and you meet interesting people along the way. Sure, there's a certain amount of risk, but I can take care of myself."

This might be the comment from many of the young people hitching and giving rides on today's highways, but is it a valid comment? Is it the whole story?

Driver is not down on ALL types of hitchhiking, although we feel there is a greater amount of risk involved than some of our readers realize. This risk is greater off base than on, and is good reason for service people to think twice before they offer a ride or bum one.

Although one misadventure may not prove that hitchhiking is not worth the risk, the trend toward increasing incidents as well as the types of incidents seem to be pointing in that direction. Here, for example, are a few recent cases:

A soldier stationed in California was heading for Massachusetts to spend some leave time. He was picked up just east of Cleveland by a mixed bag of young vagabonds nestled in a van. The driver turned off the highway and onto a back road, where the soldier was beaten and robbed by the male members of the group.

A Norfolk-based sailor returning to his base thumbed a ride in an automobile containing two male occupants. He didn't make it; he was beaten, robbed, and thrown into some bushes next to the highway. The dazed sailor managed to crawl to the edge of the road, and was found several hours later by a policeman cruising the area. It took many stitches to close the wounds in his scalp, and he was some $50 poorer.

A sailor stopped and offered a lift to a couple of young men. A short time later he felt cold steel against his neck. The two absconded with his car and his wallet containing $200.

Two airmen picked up a hitchhiker wearing the uniform of an Air Force sergeant. It turned out that the sergeant was, in reality, an escaped convict who had stolen the uniform. The airmen lost the car and their money.

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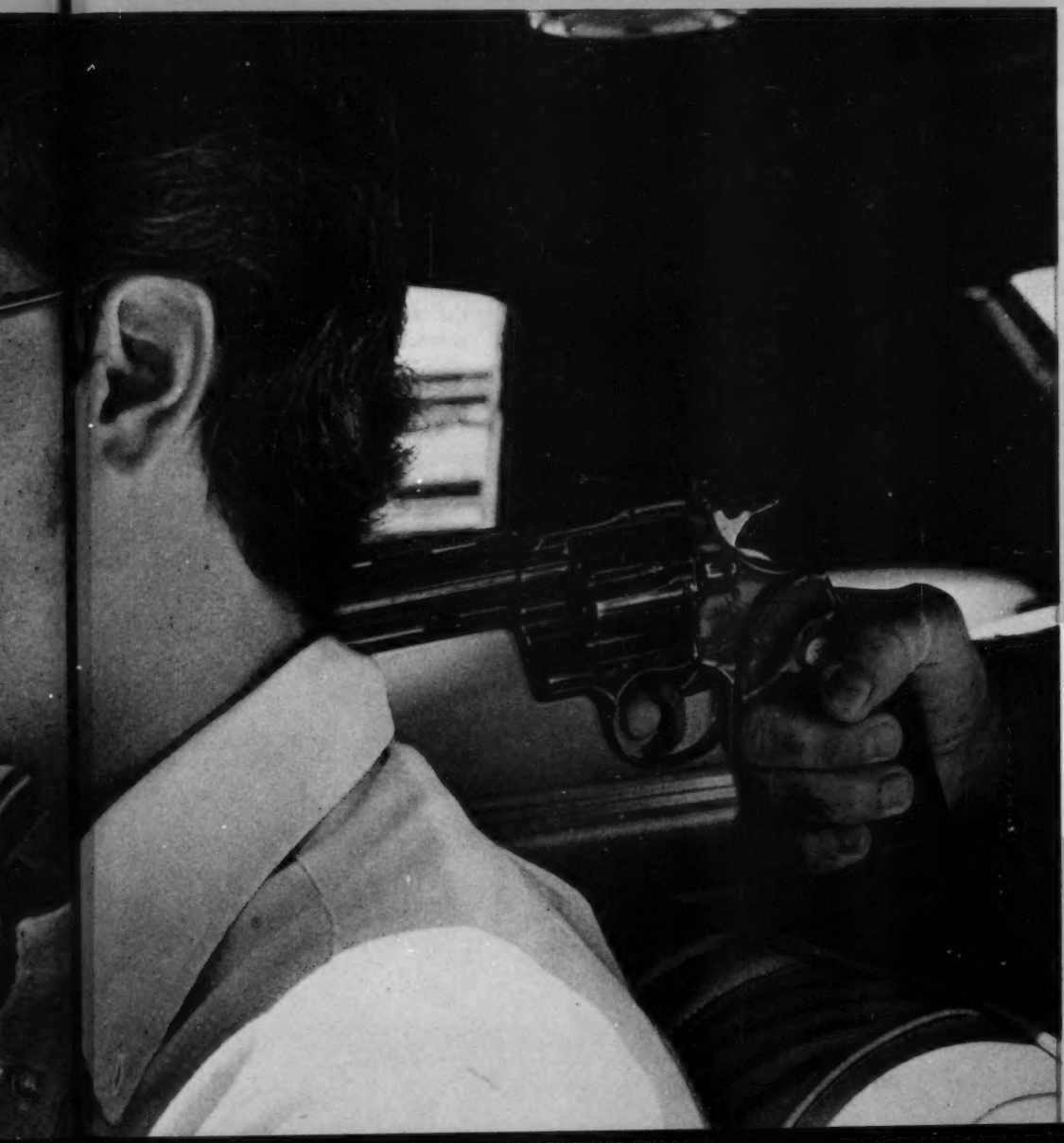


The problem is you never really know who you have picked up . . .

HIT

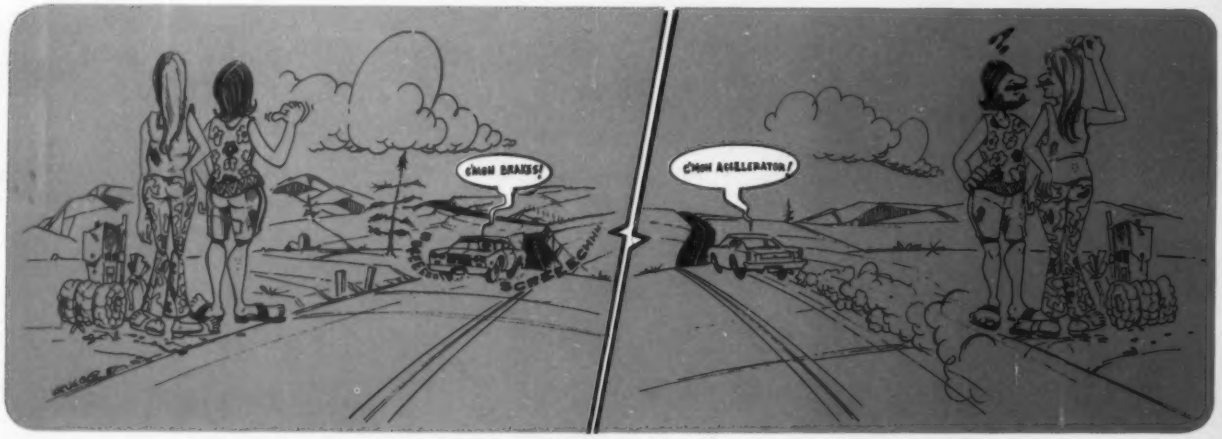
HITCHHIKING
continued

Besides checking with your base Security Police concerning Service and Base hitchhiking regs, you should also know the rules of the state you are in. Most forbid hitching a ride from a position beside a freeway. The hitchers shown here are not on the freeway; however, they have endangered the car which has stopped for them and is now partially blocking the freeway entrance.

Most types of hitchhiking are hazardous for the simple reason that all parties involved place themselves in a position of total trust of strangers. There is simply no way of knowing whether the mild-mannered Clark-Kent-type who opens his car door to you is really not a professional criminal. Even more likely is the possibility of getting hooked up with a drunk, or other type of dangerous driver. As a serviceman your risk is higher than average. For example, it is easy for someone offering a ride to determine on sight, by your uniform, haircut, or proximity to a base, that you are in the military. Thus, it wouldn't be much harder, through some harmless-sounding questions, to find out you are on leave and most likely carrying a sizeable lump of cash.

WHERE TO HITCHHIKE

On the other hand, if you do decide to hitchhike, the fact that you are in the military just might save your neck. If you must hitchhike, or offer rides, DRIVER recommends you do it only from the hitchhike stands you find near the gates of some bases. Your chances for a successful trip will be much better because you will have eliminated the "total stranger" bit to some extent, in that the driver/passenger you come in contact with is probably connected with the military. If hitchhike stands are not present at your installation, it is very possible that either the base or service regulations of your branch of service forbid hitchhiking. Some services also forbid hitchhiking in uniform, so it is best to check with your local security police before you try thumbing it." •



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DOUBLE CLUTCH

The Innocent Passenger?

there listening to the lecture or demonstration . . . and suddenly his eyelids close. He might awaken all of a sudden, surprised and embarrassed at what happened. Or he might just go sound asleep. His eyes simply shut without any prompting on his part. But if a driver's eyelids close for only 2 seconds while the car is traveling 50 miles an hour, the vehicle will have traveled roughly 50 yards . . . half a football field, blind!

Accident files are filled with records of cases in which a driver's eyelids closed momentarily. One driver was aroused by his passenger's scream and the sound of stones from the right shoulder of the road being thrown against his car's underside. He was terrified when he realized that he was r pidly going off the right side of the road. This driver made a hard left panic turn and went completely off the **left** side of the road, barely missing an oncoming car in that lane.

So, how are you going to know when **your** driver is unreliable? You can never be sure, but you can avoid riding with a driver who is apparently unfit to drive, or one whose car is in dangerous disrepair. After all, you're the rider . . . and your life is also at stake.

Concerning alcohol or drugs, I'm not talking about taking a chance with a driver who can't even walk straight. Riding with him is clear suicide. I'm referring to the driver who does not appear to be under the weather, but simply has very slow reflexes, flushed or overly pallid complexion, and looks drowsy.

When you do decide your driver is too risky, do it **before** you get into the car. Last year many of those 72 victims made the wrong decision before getting in, and some made the right decision too late. None was blamed for the accident, but all could be faulted for trusting an unreliable driver.

There are lots of simple ways to handle the situation. Some fellows rotate turns being the driver each time they go out, and the one whose turn it is to drive does not drink. Others might have a buddy working swingshift pick them up when he gets off duty. There's only one thing not to do—don't pick the wrong driver. Don't become a rider fatality in 1972. •

Answer to "WHAT SHOULD YOU DO?"

(See back cover before reading)

The best course of action here is B. "Take foot off gas,* quickly steer in the direction the rear end is skidding, and be prepared to steer back in the other direction." Countersteering should bring you out of the skid if you react fast enough and the skid hasn't reached the point of no return. Pumping the brake will only make the skid worse if not make the car break loose completely. And, locking the wheel in a countersteer may bring you out of the initial skid but leave you unprepared for a second or third skid. Rapid countersteering is likely to cause a car skidding at this speed to overcorrect and swing back around the other way. If you are not prepared to correct for a skid in the other direction, you are likely to lose it on the second or third skid. When the car straightens out, it can be slowed by applying the brake pedal in firm, gentle pumping motions. •

* In manual-shift car, depress the clutch.

1971 DRIVER Index

The annual DRIVER Index, cross-referenced by title and subject matter, was distributed to all safety offices in the July-August 1972 Ground/Explosives Safety Officers' Study Kit.

Safety officers are urged to make this fact known, and to make this and past issues of DRIVER Indexes available to all assigned personnel.

A limited supply of the 1970-71 Indexes are available upon request to Editor, DRIVER Magazine (AFISC/SEDD), Norton AFB CA 92409. •

About Miss DRIVER

(See page 5)

Miss Jo Ann Van Leuven would brighten **anyone's** winter day. The 17-year-old five-foot-six blonde has many things going for her, including an A minus average in High School. Jo Ann keeps in top shape through a rigorous program that includes varsity cheerleading, tennis, modeling, horseback riding, dancing, and after-school employment. Although she is undecided about a college major, she is definite about continuing in the modeling field or working as a buyer.

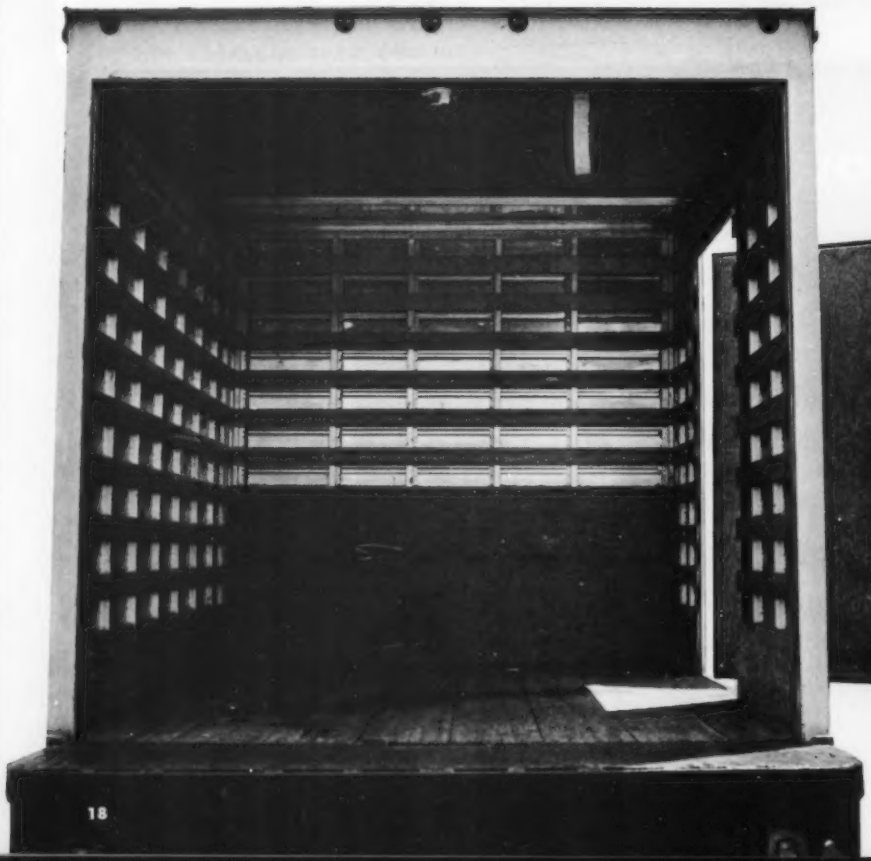
A comment Jo Ann made while talking with the Editor about dangerous drivers really struck home. Jo Ann recounted an incident of dating a fellow after he had been drinking. Jo Ann's comment: **"Never again!** His nutty driving really scared me. Now, I won't go out with the type who drives after drinking, **or** with speed freaks." •

With longer, more stabilized tours, larger families, and more single troops living off base, **local** moving from house to house or apartment is becoming more routine. Many service people are turning to do-it-yourself moving for what they consider economy, convenience, and less wear and tear on the family belongings.

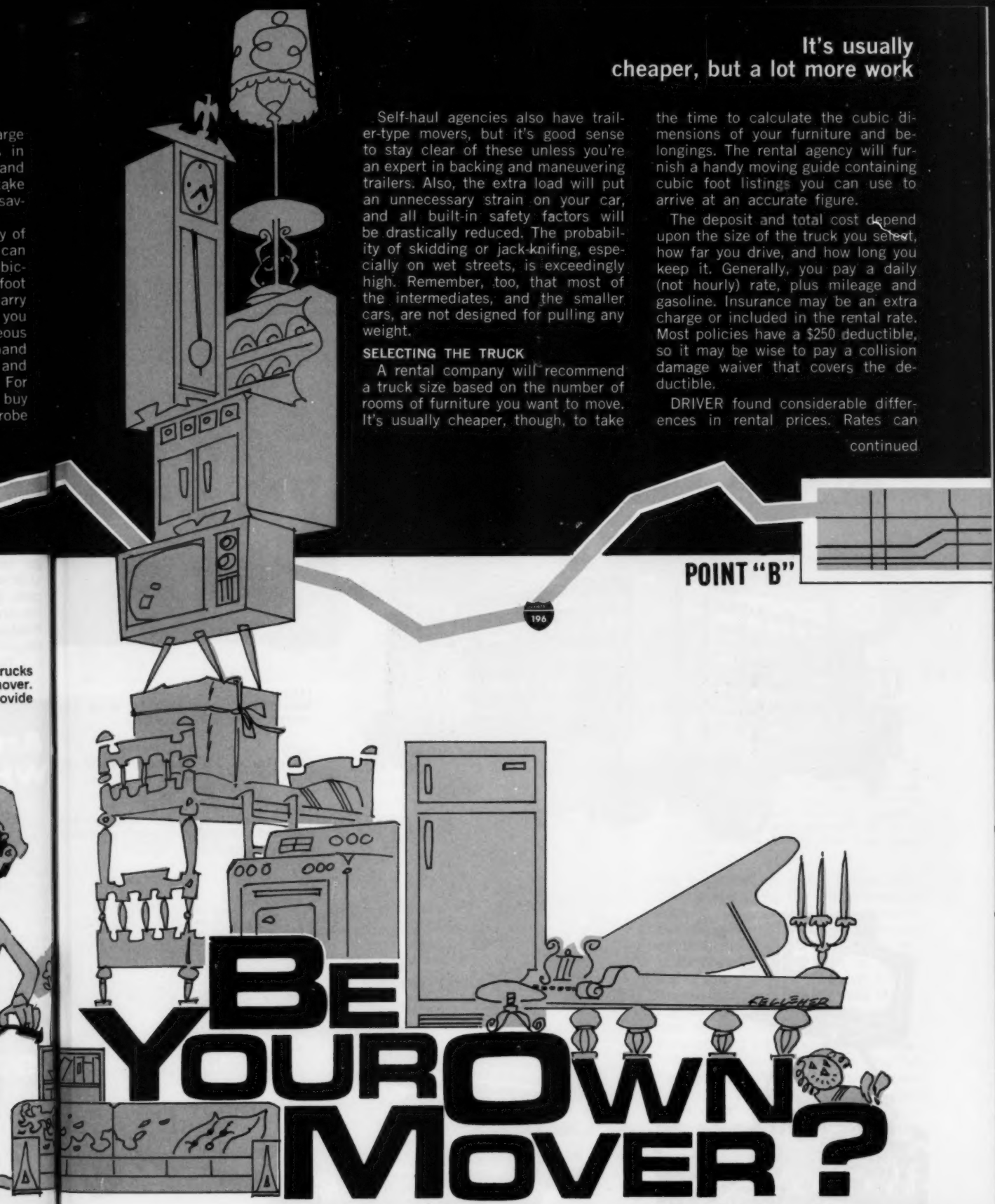
Whether the pluses outweigh the minuses in your particular case is something you should look into. Do-it-yourself moving can be cheaper, and accomplished on a holiday or any time most convenient for you. You can start as early as you like, and work as late as you want. Finally, you won't have to sweat out any time-consuming and temper-straining damage claims.

On the other side of the ledger, remember that "do it yourself" means just that. You and your inexperienced family will have to load, properly tie down, and then unload the TV, the refrigerator, and all the big, expensive furniture. If you don't have at least a couple of husky sons or relatives to help, you'd do well to solicit the assistance of friends. You'll have to carefully pack all the dishes, glasses, and fragile odds and ends. You'll be solely responsible for the whole schmear, involving practically everything you own. According to word received by DRIVER from truck rental people, you shouldn't get into it unless you rent a truck large enough to move your belongings in one trip, have sufficient help, and are willing to spend the time and take the care necessary to make the savings worthwhile.

Rental companies offer a variety of trucks and moving aids. You can rent anything from a small, 250-cubic-foot-capacity van to a big 24-foot stake or closed truck that will carry up to nine rooms of furniture. Or you can rent a pickup for miscellaneous hauling jobs. You can also rent hand trucks to load the big pieces, and furniture pads for protection. For easier and faster packing you can buy all sorts of cartons and wardrobe units.



The larger companies design their trucks especially for the do-it-yourself mover. Flat floors, ceiling, and sides provide more room.



BE YOUR OWN MOVER?

It's usually cheaper, but a lot more work

Self-haul agencies also have trailer-type movers, but it's good sense to stay clear of these unless you're an expert in backing and maneuvering trailers. Also, the extra load will put an unnecessary strain on your car, and all built-in safety factors will be drastically reduced. The probability of skidding or jack-knifing, especially on wet streets, is exceedingly high. Remember, too, that most of the intermediates, and the smaller cars, are not designed for pulling any weight.

SELECTING THE TRUCK

A rental company will recommend a truck size based on the number of rooms of furniture you want to move. It's usually cheaper, though, to take the time to calculate the cubic dimensions of your furniture and belongings. The rental agency will furnish a handy moving guide containing cubic foot listings you can use to arrive at an accurate figure.

The deposit and total cost depend upon the size of the truck you select, how far you drive, and how long you keep it. Generally, you pay a daily (not hourly) rate, plus mileage and gasoline. Insurance may be an extra charge or included in the rental rate. Most policies have a $250 deductible, so it may be wise to pay a collision damage waiver that covers the deductible.

DRIVER found considerable differences in rental prices. Rates can

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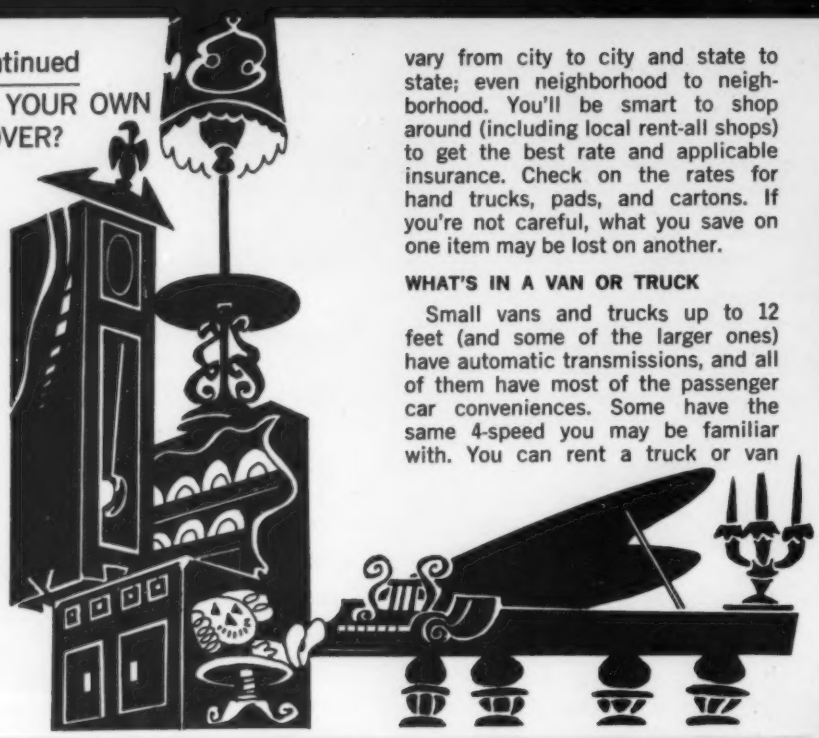
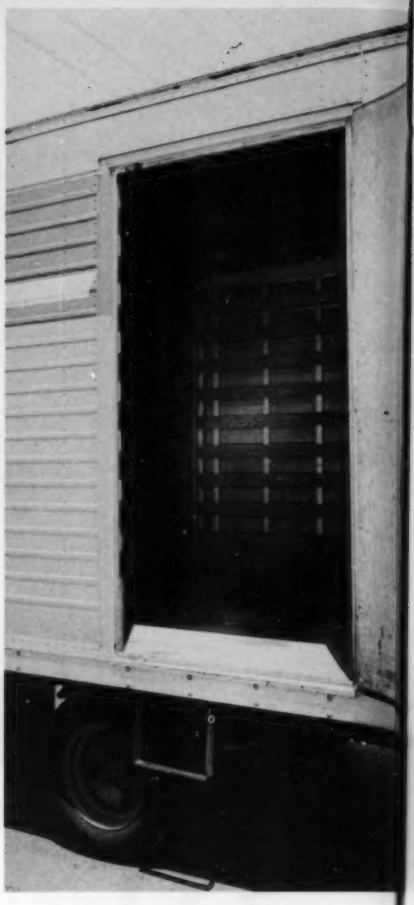
BE YOUR OWN MOVER?



vary from city to city and state to state; even neighborhood to neighborhood. You'll be smart to shop around (including local rent-all shops) to get the best rate and applicable insurance. Check on the rates for hand trucks, pads, and cartons. If you're not careful, what you save on one item may be lost on another.

WHAT'S IN A VAN OR TRUCK

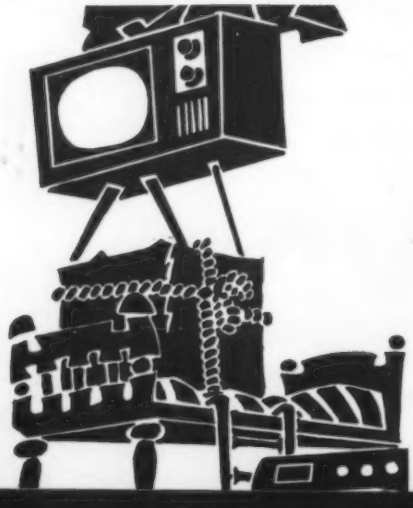
Small vans and trucks up to 12 feet (and some of the larger ones) have automatic transmissions, and all of them have most of the passenger car conveniences. Some have the same 4-speed you may be familiar with. You can rent a truck or van



(above)
Side-loading truck may be more co venient in some instances.

(left)
Stake trucks are less expensive to re than the closed type.

(below)
Pickups are popular for small movi jobs and miscellaneous hauling project



with a power-operated tailgate, but most have a slide-out ramp. Some have a lower bed that holds more and is easier to load from a sidewalk or driveway. Some have side-loading doors that may be more suited to a particular house or apartment. But be sure it was built for moving furniture, not for carrying chickens—or steel plate. It should have padded "rub" rails to protect your furniture. Check for tie-downs installed at regular intervals along the insides. You must be able to tie your belongings securely enough to keep them from pitching or rolling during the trip. The floor (except for the wheelwell area) and ceiling should be flat enough for uniform packing. The moving guide lists detailed packing and loading procedures; follow the instructions to the letter.

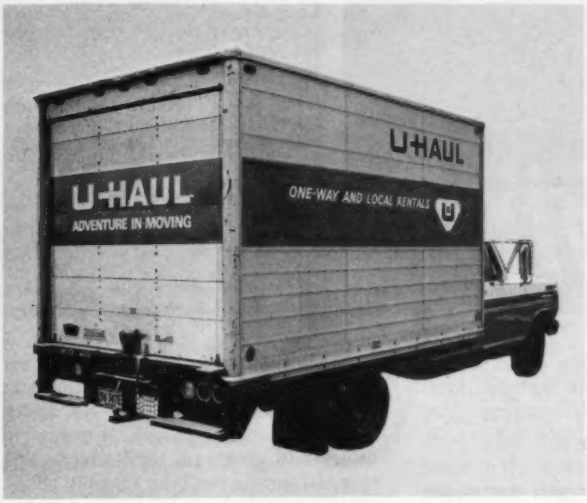
BE QUALIFIED, ABLE, AND CAREFUL!

While you're estimating the possible savings, keep in mind the always present hazards that attend attempts to wrestle heavy, unwieldy items up or down steps and loading ramp. A slip of the foot could land a refrigerator strapped to a hand truck squarely on top of you. Also, keep the children clear when the activity starts.

You don't need a special license to operate such a vehicle, including the 24-foot van (if it is for your own use, not for hire); but remember, they're still trucks. Don't be one of those unfortunates who forgot to check themselves out thoroughly in operating the vehicle. A few dry runs in a low-traffic area before you load will let you know if you're up to the task. When you get underway you must observe truck speed limits, and you may not be able to use certain restricted streets. Look for such warning signs before swinging into any busy boulevards.

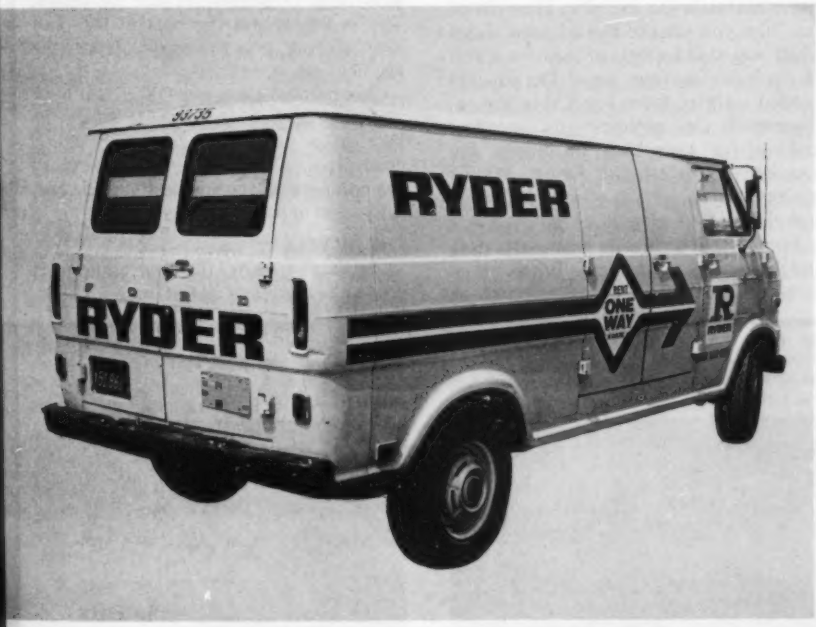
Instruments and controls are pretty much the same as your family car, but be sure to adjust the seat and mirrors before taking off. As in driving a camper or motor home, positioning and using the side mirrors is extremely important. And when you're backing the vehicle, have someone on both sides guide you. Above all, a furniture truck or van is much higher and wider than your car. Check the overhead clearance before charging into an underpass, service station, or your own garage. Your insurance will not cover overhead damage.

Advance planning and selecting the right equipment can be a money-saver for many Service people. But your move could cost you everything you own, and more, if you don't know how to handle a truck. Skipping listed packing and loading procedures, failing to obtain full-coverage insurance, or sideswiping a car, mailbox, or utility pole could also diminish your savings. Good luck! •



(above, left)
Power-lift gates and automatic transmissions are available on many models.

(above, right)
If you choose the closed type, be sure it's waterproof. Rental agents say: "If you can drive a car, you can drive one of our trucks, no special license is required." But don't take the agent's word on that—check yourself out in a traffic-free area before you load your furniture.



Small vans are easy to drive; handy for small apartment moves.

BICYCLE SURVIVAL

by TSgt HANK KRUEGER

Bicycles are definitely in. But when you're on one you could be in a world of hurt—if you haven't been checked out. So, let us delve into this healthy, exciting, terrifying, dangerous, but non-polluting and rapidly growing pastime.

(above)
Long-distance touring is a delightfu change from the daily grind—providin you are properly prepared, both men tally and mechanically.

Many communities are establishin clearly marked bike routes which pro vide an added margin of safety an may help squelch the injury and deat rate among bike riders.

(right)
Planning a weekend trip? Take you bike along and really enjoy the scen ery. Locking your bike to the rack i recommended, just in case someon decides to take it at a coffee stop.

I have ridden a 10-speed bicycle for 3 years now, and can attest to the fact that it is a fascinating activity. Covering 30 miles in 2½ hours is a real thrill, and opens up a whole new world. You see conditions and situations that have always existed, but which passed unnoticed as you cruised along in your ton of steel, glass, and gas. Don't get me wrong—cars are necessary, all right; but, pound-for-pound, compared to a good 10-speed, cars are about as efficient as using the *USS Enterprise* to troll for walleyed pike on Chautauqua Lake.

Basically, to get started you need a good pair of legs, some ambition, and a bit of courage. Next comes a bike and optional equipment. You also need a good grounding in the "rules of the road" for bikers. This includes legal and common-sense information that could keep you in one piece as you ride.

THE RIDER

Perhaps a new rider gets started because he needs the exercise. How about you, can you see the tips of your shoes when you stand erect, or is there a roll of fat blocking your view? Do you get winded walking from the TV to the refrigerator? Or, perhaps you are just looking for something to relieve the boredom of day-to-day living. Maybe you've seen a lot of 10-speeds lately, and decided to give it a go.

First of all, put your brain into gear and look at your budget. Bikes range from around $60 on up to as much as you want to pay. My advice to the novice is to stay in the $80 to $100 range and buy from a reliable dealer who services what he sells. A reputable dealer will give you good advice, and should even fit the bike to your "bod" according to proper bicycle geometry. This is a simple but important task and insures you get the most from the physical effort exerted.

Secondhand bikes are OK if you trust your source, but remember to take your bike to a new bike dealer should it need repair or adjustment. Before buying compare prices and equipment carefully, and talk to other riders.

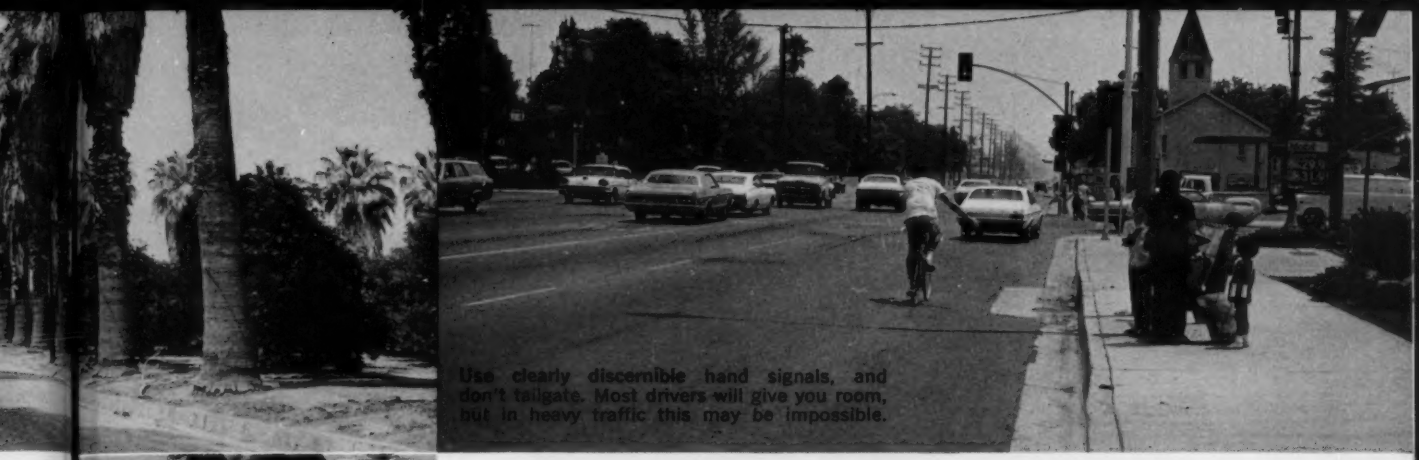
THE BICYCLE

As in any sport, the best equipment offers the best and safest performance.

Keep your wheels centered; your tires will last longer, and the brakes will function more efficiently. Also check for bent rims.

Be alert for obstructions and **"litter."** If you must make an evasive maneuver, be careful to avoid any parked or moving traffic.

Loose sand can spill you in a hurry, so slow down and proceed cautiously. Try to avoid it if possible.



Use clearly discernible hand signals, and don't tailgate. Most drivers will give you room, but in heavy traffic this may be impossible.

While some 10-speeds are inadequate, beginners staying within the 80- to 100-dollar range should be able to purchase a good bike. Aluminum bikes are more expensive, but are usually equipped with the best running gear (such as brakes, derailleurs, and sprockets), and offer a whole group of other advantages. These super-lightweight bikes are precision made, easy to maintain, and offer the best performance. However, you have to be more careful with the aluminum rims; broken pavement, rocks, railroad crossings, and the like can cause out-of-tune (bent) wheels.

OPTIONAL EQUIPMENT

A rear-view mirror is as important on a bike as it is on a car or motorcycle. You've got to know what is closing in on you from the rear without turning your head 180 degrees—and then plowing into a curb or another vehicle. You must have lights if you ride at night, but I urge you to keep your night riding to an absolute minimum. In addition to the lights, liberal use of retro-reflective tape and reflectors is a great way to make yourself and your bike more visible (see p. 10, this issue). Should you find it necessary to extend a tour beyond daylight hours, be prepared for the hazards of night riding. Both generator- and battery-powered lights are fine, as long as you keep them in good operating condition.

Another handy item on long rides is a water bottle. I keep a plastic bottle filled with half orange juice and half water in the freezer. As I ride, the liquid thaws but stays cold for hours—and it thaws slowly enough to keep me from using it too fast.

You'll also need heavy-duty inner tubes, which resist sandspurs, glass, and other sharp objects. You will be amazed (and disgusted) at the amount of litter you will encounter. Once, in the span of 3 miles, I passed a bed, couch, refrigerator, 2 chairs, assorted clothing, hundreds of cans and broken bottles, and miscellaneous trash; enough junk to furnish a small house and still keep our trash collector busy for awhile. It seems our litter laws should be more strictly enforced.

A functional seat or saddle usually comes with the bicycle, but you'll soon find it wasn't designed for comfort. However, you will adjust to it in time. It is designed primarily to keep you seated in the proper operating attitude. Standard foot pedals are all you'll need, ordinarily; but for racing, stirrup mounting is required. A must for long- or short-range touring is a small saddle bag with a few tools, tape, first aid items, and travel necessities. A damp washcloth in a plastic wrap, and a sandwich or two, could make your day.

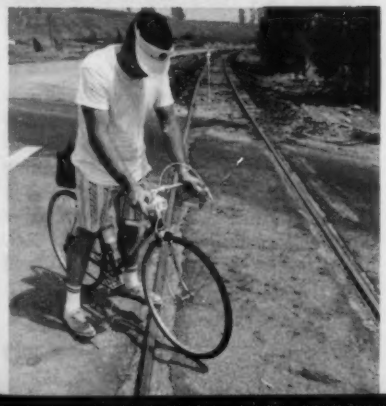
There are many handy accessories to choose from, now that 10-speed touring is catching on as a pastime. Such items as radios, speedometers, racks, special footwear and clothing, headgear, and many more are available. Figure your needs with an eye to protection in a spill, and buy only quality gear; you don't want failures when you are 10 or 15 miles from home base.

Consider the following tips as you prepare for a tour

- Don't overextend your physical capabilities. Plan your biking time so you can start out slowly; just a few

continued

Always walk your cycle across railroad tracks. A bent rim 10 miles from home could mean a long walk.



Many rural roads have small shoulders, or none at all. Here you see heavy traffic and no room for a cyclist. Plan your route to avoid such roads.

Bottles, beer cans, and trash are disgusting enough, but a refrigerator?? You will enter a whole new world as a cyclist, and you will see things you would never observe from a car.

Over the litter and through the woods. Here, the author stops for a cool drink and a view of California scenery. Cross-country touring beats city cycling, and you can travel as far as ambition and common sense allow.

Picture yourself on this bridge with a car in front and a truck overtaking you from the rear. Enough said about being alert to traffic at all times?

A water bottle is a necessity for long tours. If frozen, it thaws slowly and offers cold refreshment during the ride.

This saddle bag has ample ro for tools, a nylon jacket, anc sandwich or two. You should a carry a bike lock and an accur tire pressure gage (arrow) wh reads up to 130 pounds. M service station gages aren't su ciently reliable.

continued
BICYCLE SURVIVAL

miles the first day, and then build up gradually.

● Plan your route, and try to stay out of heavy traffic (this also includes the experienced cyclist). In any traffic, as with driving, plan for emergency evasive tactics if required. Believe me, one inconsiderate or careless driver can wipe you out but quick. A car once ran a stop sign and forced me to opt for the toolies, where I landed sitting on jagged rocks, broken glass, and other sharp objects. I wasn't permanently injured, but existed rather uncomfortably for some time—and my bike was a mess.

● Preflight your equipment. Some of this can be done before mounting your bike, and the rest during the first mile or so. If anything is amiss it will usually show up early.

● Carry a bicycle chain lock with you at all times. When you stop for coffee or whatever, lock the bicycle to some permanent object—and park it where you can check it periodically. Bicycles are prime targets to be ripped off, so don't leave yours unlocked unless you don't want it.

● Carry some loose change, in case you get stranded and have to call home or to a friend for help. It's also a good idea to have your ID card with you, and let someone know where you will be going—just in case of trouble.

● Give proper hand signals, don't make sudden moves, and forgo horseplay in traffic or around parked cars; you could land in a hospital bed, or worse!

● Be alert; look for road hazards, and watch side roads. Many cars will try to "beat" you at intersections, so give them lots of room.

● Check your state bicycle laws frequently; state legislators have been making quite a few changes in requirements lately. In some states, including California, a bicycle is classed as a vehicle and must be ridden in the same direction the traffic is moving; in fact, basic motoring rules apply to both

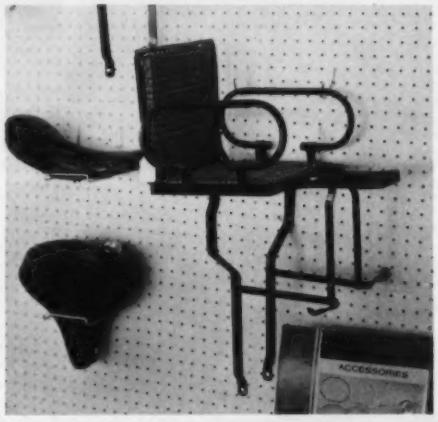
Quick-disconnect hubs are handy; but remember, a thief would find them just as convenient.

Something new! These brilliantly colored flags attach to the rear of frame and are available at many service stations. They make you more "visible" in traffic, and could save your neck.

A rear-view mirror is a must for safe cycling. Also seen here is a combination radio and headlight. Nothing like cruising along to the sound of your favorite music. Just don't play it loud enough to drown sounds of approaching traffic from behind.

Reflectorized pedals are effective if you must travel at night. At front right is a battery-powered two-way lamp that straps to your leg.

If you like family cycling, bring junior along too; the kids love it. This is a golden opportunity for Dad to teach safe cycling to the young ones.

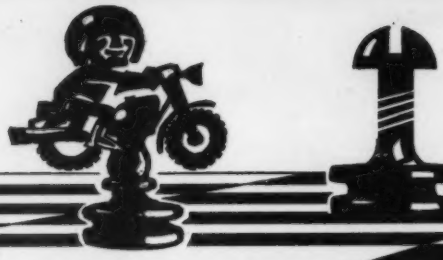


motorcycles and bicycles. I have seen many bicyclists riding against the traffic. This is dangerous. The driver of the car coming toward you would rather take on your oncoming bike than a truck in the other lane. Also, your closing speed is fast and can be easily misjudged.

- Stay off of sidewalks.
- Don't panic if a dog decides to attack; try to maintain your speed and control, and retain your cool. I've been chased many times, and used to carry a squirt bottle filled with ammonia. I soon found that this would stop dogs but was really optional because most dogs I encountered were all bark and no bite. However, you might meet one that will bite, so be ready to fend him off. A rap on the snout will generally send him away.
- While riding in a group, ride one behind the other—leaving adequate gaps for passing cars to enter safely.
- Wear bright clothing; the more visible you are, the safer your trip. Take a tip from the smart motorcyclists who burn their lights while riding, at all times. Again, be sure you have front and rear lights, retro-reflective tapes, and red reflectors to reduce the risk if you ride at night.
- Stay out of puddled water, which can be a hazard in many ways—ask a motorcyclist about this one, too, if you doubt it.

I hope these tips will help novice riders as well as the old heads. Bicycle riding can be fun, and is great exercise if approached in the right manner. Riding to work or making short trips to the store or to your friend's abode will prevent a lot of wear and tear on your car. At times I get the feeling I don't even need a car, except for long family trips or hauling Little League teams. Anyway, this was written to help the cyclist, not to bad-mouth automobiles. A little education in the care and use of bicycles is really all that is intended.

One last note: 10-speeds don't POLLUTE! ●



Adapted from CYCLE NEWS. Permission from Bill Kaysing and the Parkhurst Publishing Co gratefully acknowledged

PART IV HOW TO MAINTAIN YOUR MO

Routine maintenance of motorcycles has been well documented in service manuals. The subject matter here involves the fine detail work that must be done to keep your cycle in top shape for both safety and efficiency.

A few pounds-per-square-inch less air pressure in your tires can cause the tire to rotate on the rim and pull out the tube stem during acceleration or braking.

But even more exciting is the sensation of observing the front forks dropping out of the tubes while lofting the bike over a jump. Can't happen to you? Possibly not, but it has happened . . . and can happen again. Preventive maintenance will keep such things from happening to you.

NUTS AND BOLTS

It is surprising how many accidents and near-accidents have been caused by simply having a vital part fall off at a critical time . . . and let's face it, most parts on a cycle are vital. Furthermore, any moment can be *critical* if a vital part fails. Take a look at your motorcycle right now. Use a wrench on every bolt and nut. If you don't find at least a couple that could stand tightening, you have a most unusual machine.

Making clockwise music with a box wrench is so basic to safe motorcycling that having something go bounding off your bike into the bushes indicates you are either accident prone or just plain neglectful of your own safety. Don't wait for parts to rattle a danger signal . . . keep them snug with a wrench,

(left)
Nuts, bolts, and securing devices should be checked and tightened at least once a week. Off-road machines should be checked before each outing. The best bolt and nut sealing product for motorcycle use is the tubed putty variety which helps prevent vibration loosening, but a good twist of a wrench will break its seal.

(below)
Tires should be replaced long before they look like this. When tires do not show definite tread, or a change in cornering stability or traction is felt, replace them. Don't think the critical front tire on a road bike is in good condition just because it has a lot of tread in the center. The center of the front tire gets very little wear; the sides take all the punishment during turns. When the sides do not show a definite tread pattern, replace the tire immediately. Consult your dealer about using a "diamond" tread pattern instead of a conventional ribbed front tire for road riding.

Rear tires receive the most wear on the center tread during acceleration and braking. Replace the rear tire when it is incapable of gripping during a fast stop. This "knobby" was worn out fast by excessive use on pavement. On a dual-purpose machine that sees a lot more pavement than dirt, it is safer and more comfortable to use a "universal" tread tire; it will also provide sufficient traction for most off-road riding.

INTELLIGENT MOTORCYCLING

by BILL KAYSING

OUR MOTORCYCLE FOR MAXIMUM SAFETY & EFFICIENCY

lock washers, cotter pins, and other securing devices.

Take a pointer from airplane pilots, who inspect their planes before take-off. Do the same, and you will have that fine, confident feeling as you bank back and forth down a mountain road or "fly" low through the countryside.

TIRES AND TUBES

With anyone who has ever had a flat at speed on a cycle, preventive maintenance of tires and tubes rates high priority. As long as your bike's wheels are well shod, you will avoid the first and foremost hazard of motorcycling. Assure yourself that your tires and tubes are the best obtainable, properly mounted, inflated, and balanced. Then your chances of hitting the asphalt unintentionally will be substantially reduced.

Many riders like to get the last few miles out of their tires. They look at the thick tread on top of the front tire and think there is a lot of mileage left in the old carcass. However, the top tread gets little wear and tear, and is seldom used hard for braking. The sides take all the punishment in turns, since they push against the road to support the cycle.

In time, a front tire will come to resemble a triangle, with the heaviest wear occurring on the left side; this is the side that most riders bank to the steepest angle. So, when the *sides* of a front tire do not show definite tread, it is time to change without delay. Otherwise, you won't have the required grip on greasy or wet surfaces.

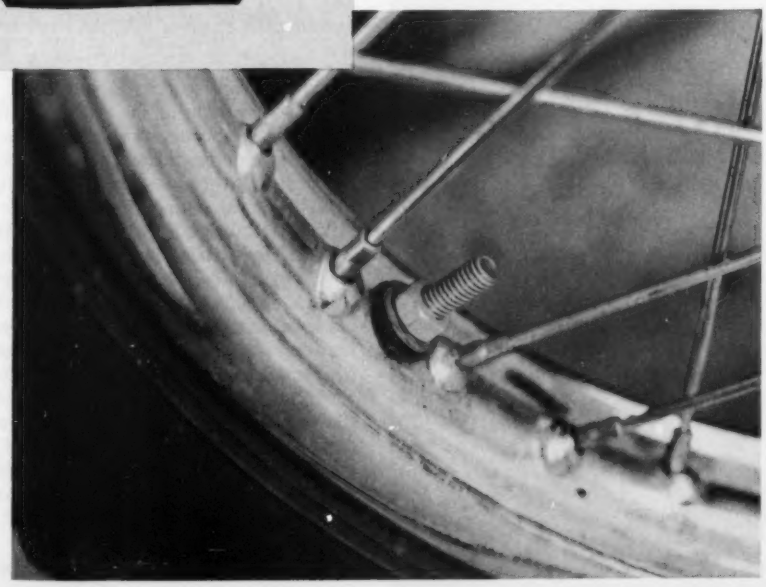
Conversely, rear tires wear little on the sides, but take a beating in the center from the friction of acceleration and braking. Be safe; change rear tires when the tread pattern is no longer capable of gripping the pavement during a fast stop. Running a slick is fine for the drag strip, but you need the adhesion of tread for the many varieties of surfaces encountered in an average day of highway riding.

Tubes are as important as tires. They should always be of the best quality, free of rim cuts or pinches, preferably free of patches, and properly installed. If you are a novice at mounting cycle tires, let a professional do it and learn from him. It is false economy to mount your own tires if you do not have the proper tools and know-how. The bead on a cycle tire is a lot more difficult to work with than an auto tire.

Pinching the tube is the most common hazard, but there are others. You set yourself up for an eventual blowout when you mount a tire with gravel or rocks between the tube and tire. Failure to seat the tire bead in the rim will result in an out-of-balance wheel and an unstable bike at high speed, not to mention excessive wear. And installing a tube stem at an angle is another invitation to failure. Again, let the pros do it until you have learned the trade. It is one which requires a diamond cutter's patience and the endurance of a 40-lap hare-scrambles rider.

In Part I of this series (June '72), I told of a tire rotating on the rim and nearly killing me and my passenger. To prevent this from happening when air pressure is low, drill the rim and install a tire-deadlocking device. And, for real protection, buy the best tires and tubes, install them properly, keep them properly inflated (bearing in mind the temperature, road surface, and the load), and check them before each ride. Remove any nails, glass, or other foreign material. Also, check them for cuts, bruises, or damage that could affect their air-carrying capability. This attention will pay big dividends. ●

Ed note: In Nov, Bill Kaysing continues his discussion on cycle maintenance.



Installation of tire deadlocking devices is the best way to prevent tires from rotating on their rims. A rotating tire can produce disastrous results. Deadlocking devices are available at most cycle stores, and simply require drilling a hole in the rim for installation. Don't forget, the deadlocking device is most effective when tire pressure is properly maintained.

LETTERS TO THE EDITOR

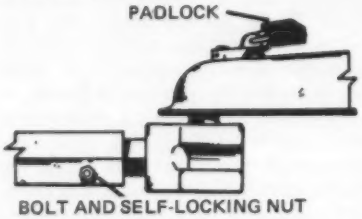
BACKFIRE

Address your letters to:
Editor
DRIVER Magazine
SEDD
Norton AFB CA 92409

Your June '72 trailering article pictured a straight pin with a spring-action safety pin to hold the trailer hitch. A bolt with a self-locking nut will keep the hitch from vibrating loose, as mine did. Fortunately, I wasn't towing a trailer at the time. If you prefer to remove the hitch when not towing, use a large cotter pin with the ends bent back, or a large "diaper" pin; and, use a new cotter pin each time it is removed. I also padlock the ball latch in the DOWN position to discourage thieves.

That was a fine article, and timely, considering the growing use of trailers among military families.

TSgt J. W. Widner
P.O. Box 3406
21 TASS, PSC Det 1
APO San Francisco 96201



As Unit Safety Officer, one of my duties is to supervise special motorcycle-rider groups. I frequently call upon information from DRIVER for briefings.

I was exceptionally interested in your July '72 article, "What You Always Wanted to Know About Motorcycle Laws." The value of the information presented is immeasurable to the military man who is frequently in a new state.

The map, however, indicates a requirement in Arizona to ride with headlights turned on at all times. I have been informed by local authorities that Arizona has no such law.

As a matter of interest, motorcycle crash bars are required in Arkansas.

2d Lt Lyndol E. Cloe
Unit Safety Office
3525 Fld Maint Sq, 3525 Pit Tng Wg
Williams AFB AZ 85224

Sorry, our info source(s) were wrong. Our apologies to our readers, and to Arizona. Crash bars of adequate strength, size or stature to protect the rider, " and "securely fastened to the frame," are required on all motorcycles regularly operated in Arkansas. This includes military personnel stationed in that state. Crash bars are also required in Tennessee.

I am a Traffic Safety Specialist, and your articles have been a priceless aid in preparing classes during the past 2 years.

As a skier, I've noted several hazards in carrying skis on cars. Perhaps DRIVER can prevent trouble for others by publishing these precautions.

First, the ski rack should be fastened securely to the top or back of the car, and the skis fastened securely to the rack; a falling rack, or ski, could be a deadly menace to both following and oncoming traffic, and can damage your own vehicle. The rack and skis distort the airfoil around your vehicle, so high-speed driving causes a definite control problem and can tear your fun equipment from its moorings. Carrying skis inside your vehicle is asking for even more trouble. They can become lethal projectiles in a sudden-stop emergency situation, interfering with the driving and injuring the occupants. Skis should be restrained and cushioned in the back of a truck to prevent damage to the equipment or injury to the passengers. And, since a driver may be fatigued after a long day of fun and work on the slopes, he should be especially careful while driving home. A runaway ski can be deadly on the slope, but a runaway ski or a fatigued driver can cause even more havoc on the highway.

Sgt Thomas H. Young, IV
PSC #1, Box 2031
APO Seattle 98742

Thanks, Sarge, for the solemn but timely advice. Have fun, all you "She-ers," but do be careful!

I feel I must write and tell you how much I appreciate the fine DRIVER magazine articles. Safety in the use of motorized vehicles is becoming more and more a necessity. Having driven an emergency vehicle for 2 years prior to coming overseas, I have especially enjoyed your safety hints, most of which come only through long driving experience.

I have one pet peeve, which I feel should be disseminated through your magazine to owners of cars that have power brakes. The practice of resting the left foot on the brake pedal will activate the brake light, either continuously or whenever the wheels hit a bump. This is very distracting and a definite hazard, since the driver behind cannot determine if you are signaling him to slow down or not.

MSgt Jerald A. Warner
PSC #1, Box 7319
APO San Francisco 96274

Thanks for the kudo. Colonel Talbot's letter, Aug "Backfire," and our answer, discussed the pros and cons of left- and right-foot braking. His "non compos mentis" description of the brake-dragger just might cause some to cease and desist.

The USAF Academy Department of English would like to use the article, "Put Some Spring in Your Engine," May '72 DRIVER, in the Fall Semester 1972 Technical Writing Course. Would you be able to provide at least 100 copies of the article or the magazine?

This article will be used in classroom discussions with 260 Cadets on writing process descriptions, using illustrations, and analyzing audiences. We consider the article to be very well written, and it should prove extremely useful in class.

Maj Walter F. Dater
Course Director, English 430

DRIVER is mailed out by the contract printer, and we receive only a few office copies. You have our permission to use the article in your classes, and can reproduce it or obtain copies from the Superintendent of Documents, GPO, Wash. DC 20402, at 20¢ per copy.

Being an avid reader of DRIVER, I noted your article in the Aug '71 issue about making your own shoulder harness. I promptly did so, and routinely use it with the seat belt. Then you withdrew your support.

You state in your Apr '72 issue that, with the improvised harness, severe impact *may* cause "submarining" and possible abdominal injuries. There is little doubt in my mind that, without a harness, a severe impact *will* cause serious head injuries when the head snaps forward and contacts the steering gear. It strikes me that, unless there is some other reason, you should just caution the users to cinch up the lap belt firmly before tightening up or adjusting the shoulder strap.

☆U.S. GOVERNMENT PRINTING OFFICE: 1972—789-412/1

In my opinion, DRIVER is by far the best magazine the Air Force publishes. It is always well written, very interesting, practical, and useful. Keep up the good work.

Lt Col Henry V. A. Bielson
Chief, Aeromedical Services Br, TAC
Langley AFB VA 23365

The USAF changed over from a similar design in aircraft, in favor of an inverted V-crotch strap to counteract the shoulder loads and prevent "submarining"; NASCAR now requires the groin strap in race cars for the same reason, and the SAE Seat Belt Committee has not recommended use of the improvised shoulder strap. We agree that the strap would afford additional protection in other than high-speed crashes (with the lap belt snugly fastened). However, DRIVER cannot recommend the use of an item that could cause injuries at high speeds and is merely considered to be better than none at all.

I read DRIVER and enjoy the motorcycle articles very much.

I am somewhat apprehensive about riding a motorcycle in the states, which is probably due to the opinion of the American motorist toward motorcycles. I strongly support your efforts to educate the cyclist on cycle safety and good riding practices. Perhaps it is time to teach the cyclist to watch out for the motorists, and to educate the American driver to the fact that the cyclist has just as much right to the use of the streets and roads as anyone else. Perhaps then we would have fewer car/cycle accidents.

Keep up the good work with DRIVER magazine.

MSgt Marvin L. Baugh
1406 S. Maine Ave
Portales NM 88130

We're with you all the way, Sarge, and have been banging away at both themes for some time. But, same as when you're on foot, a lot depends on winning the other guy's respect.

I agree with your identification of fatigue as *the* most significant problem in USAF private motor vehicle accidents in one of your past issues ("Double Clutch," Dec '71). This is typical of your excellent publication.

I realize there is no panacea for driver fatigue. However, I think some good strong thought by all concerned could produce some desirable results.

I read and sincerely appreciate DRIVER'S stand on the problem. Here are some of my thoughts on the matter:

Most accidents involve some type of self-imposed limitations or deficiencies on the part of the drivers involved.

Detailed analysis indicates driver fatigue is SELDOM a factor in traffic accidents during the 8-hour period of normal driver activity following 8 hours' sleep; also that fatigue is FREQUENTLY a factor during the 9th through 14th hours of normal driver activity following 8 hours' sleep, and may be EXPECTED after 15 hours with no sleep.

The above factors are based on ideal driver conditions and driving environments. Under other than ideal conditions and environments, the margin of safety is reduced during all time phases.

Gordon C. Wagner
Ground Safety Officer
3902 AB Wg (SE)
Offutt AFB NE 68113

Thanks for the thought-provoking analysis—and the kudo for DRIVER.

I've beeen an avid fan and reader of DRIVER since the first issue, and think the content and graphics are outstanding.

Since I've been a "car nut" all my life, I imagine working for DRIVER must be extremely interesting and can appreciate the effort involved in producing such a fine magazine. I was involved as a driving instructor in the Cadet Driver Program at the USAF Academy for 3 years, and can assure you we used information from DRIVER on numerous occasions.

If all our Air Force drivers and riders would read and heed what you have to say, the accident rate would surely take a welcome nose-dive. I'm sure that the material presented in DRIVER throughout the years has been instrumental in preventing many accidents. Your staff members are to be congratulated for the interesting and effective presentations.

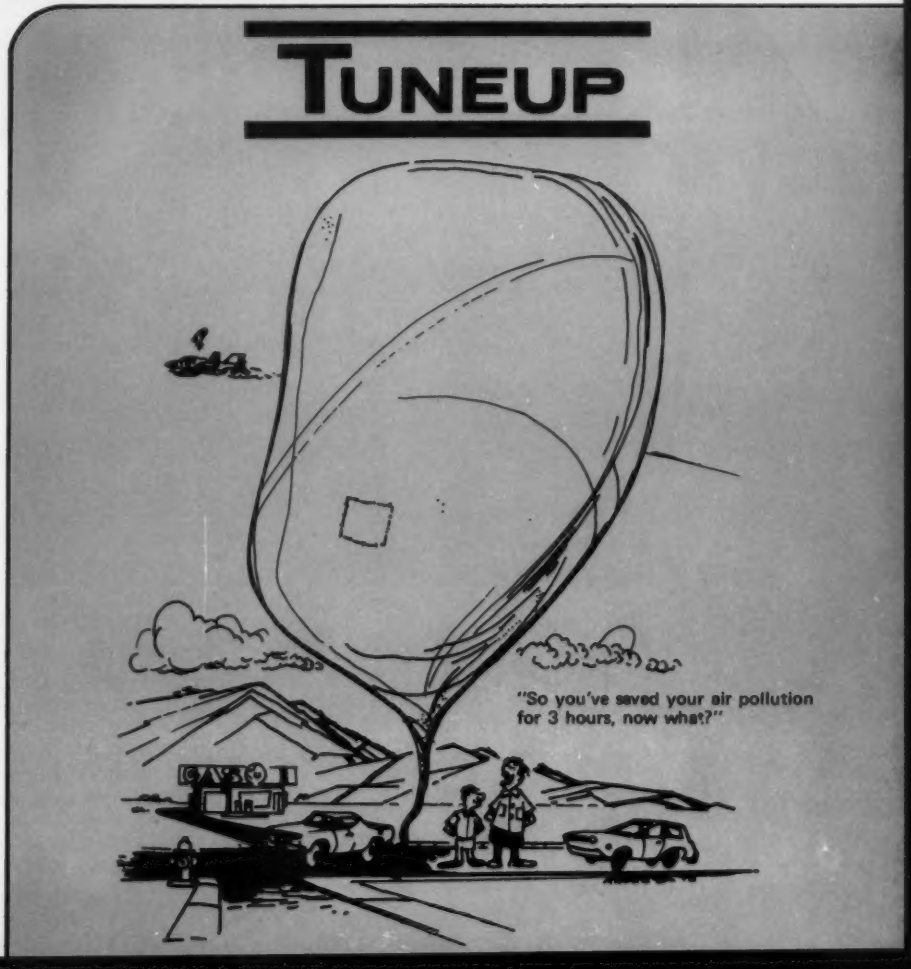
Craig T. Shafer, Art Dir
ADC INTERCEPTOR Magazine (SED)
Ent AFB CO 80912

Thank you, Mr. Shafer. You people put out a pretty fine safety mag, yourselves.

This is to request permission to reprint for use in driver education teacher preparation classes, the article on passenger responsibility in "Double Clutch," Apr '72 issue of DRIVER. . . .

Alan R. Probst
Assoc Prof, Safety & Driver Education
Calif State College, Long Beach

Permission gladly granted! Thanks for affording us the opportunity to print this and perhaps cause more people to read the article that vindicated the "Back-seat Driver."



WHAT SHOULD YOU DO

You round a curve at a cautious 45 mph on a snow-packed road, when unexpectedly the rear end breaks loose and begins to swing around. What should you do?

A.
Take foot off gas, quickly steer in the direction the rear end is skidding, and pump the brake rapidly.

B.
Take foot off gas, quickly steer in the direction the rear end is skidding, and be prepared to steer back in the other direction.

C.
Take foot off gas, and lock steering wheel in the direction the rear end is skidding.

ANSWER ON PAGE 17